



Municipality of Haldimand County

Fire Master Plan 2023



Haldimand
County



EXECUTIVE SUMMARY

This Fire Master Plan (FMP) encompasses a comprehensive review of the Haldimand County Fire Department's (HCFD) strengths, weaknesses, opportunities, and challenges. This FMP also consists of a review of the community (through the development of a separate Community Risk Assessment (CRA) report), along with identifying present and future population statistics and anticipated growth of the community. By conducting these reviews, the Emergency Management Group Inc. (EMG) was able to develop this 10-year master plan for the HCFD.

Benefits of Master Planning:

The benefits of master planning are many, but the key advantages are:

- Having a clearer vision of what future needs are to be implemented and when,
- A guide that includes options and budgetary estimates for implementation,
- Prioritization of each project, and
- The ability to communicate with staff, internal and external stakeholders about the future goals of the organization.

The recommendations contained within this FMP document have been submitted to provide a set of strategies and goals for implementation that are aimed at assisting the Fire Chief and County Council in making decisions relating to the efficient allocation of HCFD resources and staffing.

The recommendations provided by EMG have been broken down into the following timelines:

- **Immediate:** Urgently requires to be addressed due to legislative or health and safety requirements.
- **Short-term:** 1 – 3 years
- **Mid-term:** 4 – 6 years
- **Long-term:** 7 – 10 years

Note: The timelines noted within the recommendations are when the department should consider starting the implementation process. The actual completion of the recommendation may take much longer due to costing or other logistical challenges.



Ultimately, the implementation of the recommendations will depend on the Fire Chief and the direction County Council provides, as well as the allocation of associated resources and ability to move forward with the associated recommendations contained within the document.

Overview of Master Plan Sections

Through the utilization of best practices, including applicable standards and legislation, this report was prepared by completing an assessment of the following areas:

- Community and Fire Department Overview
- Planning – future community growth and related service needs
- Risk Assessment of the community through the completion of the Office of the Fire Marshal's (OFM) CRA document
- Fire Department Divisions – Non-Suppression
- Fire Suppression, Communications, Recruitment and Retention and Health & Safety
- Facilities, Vehicles, Equipment and Water Supply
- Emergency Management Program
- Mutual, Automatic Aid and Fire Service Agreements
- Finance and Budgets
- Review of Previous Strategic and/or Master Plans and FUS Reports

Recommendations are noted within each section of the document. However, Section 11 of the document contains a quick reference recommendations chart, that includes recommended timelines for implementation, along with any estimated costing and possible service enhancements to be realized with the implementation of each recommendation.

Scope of Requirements

As noted in the original Request for Proposal (RFP), the following generally describes the responsibilities of the Consultant in developing the FMP for the County.

1. **Governance** – Assess all aspects of the fire department and fire protection service delivery for legislative compliance with including *Fire Protection and Prevention Act*, Section 21 Guidelines, *Occupational Health and Safety Act*, *Emergency Management and Civil Protection Act* and Municipal Policies and By-laws.
2. **Service Delivery** – Assess all aspects of the levels and range of services and programs currently delivered.

3. **Assessing and Considering** - growth in population and employment over the next 5 - 10 - 20 years and the potential impact on service delivery, and operations of the Fire Services Department.
4. **Emergency Response** – Assess all aspects of emergency response, including call volume, trends, and types of responses, apparatus deployment, response staffing, firefighter deployment and safety.
5. **Fire Department Training** – Assess all firefighter training programs, including recruit, firefighter, and officer positions. Review training of Fire Prevention Officers, administration staff and CISM/Peer to Peer program.
6. **Fire Prevention and Public Education** – Assess all aspects of the levels and range of services for the delivery of the legislated fire prevention program, including inspections, investigations, complaint and request services, code enforcement and public education programs.
7. **Human Resources**- Assess Fire Department staffing, organizational structure, ratio of officers to firefighters relative to the effective span of control, firefighter recruitment and retention, promotional policy, succession planning, health and safety, and firefighter wellness.
8. **Administration** – Assess the administration of the Fire Department for staffing, organizational structure, policies, and procedures (Departmental and Corporate), administrative support, record keeping, information management, purchasing, inventory control, public and media relations and customer service.
9. **Apparatus, Vehicles and Equipment** – Assess existing vehicles and equipment condition, maintenance programs, replacement schedules and plans relative to existing and expected service demands, budget process and preventative maintenance requirements.
10. **Facilities** – Assess the capacity of existing facilities and plan for future needs. A review of training facilities, fleet and facility maintenance and storage requirements, fire prevention administrative space, decontamination and hygiene provisions, emergency management
11. **Dispatch and Radio Systems** – Assess the current dispatch system, paging, and radio systems.
12. **Communications** – Assess fire department communications systems, including dispatch, paging, telephones, IT related equipment and radio systems, including mobile radios, portable radios and fixed radio/repeater/antenna infrastructure and future opportunities for the dispatch service.
13. **Budgets** – Assess the department's operating budget, capital budget, reserves (equipment, vehicles), and development charges, revenues, and potential revenues, including current fees for service and recommended fee structures.

14. **Mutual Aid/Automatic Aid Agreements** – Assess existing and potential mutual aid/automatic aid agreements with neighboring municipalities for partnership opportunities.
15. **Emergency Management Program** — Assess making recommendations regarding the Department's involvement in the Community Emergency Management Program.
16. **Community Risk Assessment** – Develop a comprehensive CRA in accordance with current *FPPA* Legislative changes as the basis for determining the appropriate level of fire protection services and response capabilities to meet the County's needs, circumstances, and legislative responsibilities.
17. **Input** – Included input from members of Council, senior municipal staff, senior Fire Department Officers, Volunteer Firefighters, and the Community.
18. **Comparators**- Assess and identify municipal comparators for benchmarking purposes to compile a list of municipal comparators with a similar population, population density, land area, number of staff, number of stations, fire prevention/public education, and operating budget.
19. **Outcomes** – The plan outcomes must establish strategic priorities complete with action.

With the previously noted key requirements in mind, based on the information received during the meetings, a review of supplied documentation and reference to industry standards and best practices, there is a total of 27 recommendations for consideration by the Fire Chief and council to guide the HCFD into the future.

Overview of Recommendations

Below is a summary of the recommendations within each of the key categories. Greater detail surrounding each recommendation can be found within the section from which it is derived.

Public Fire Safety Education

- Consider greater utilization of volunteer firefighters for public education efforts.
- Staff/Personnel Development

Programming to support health and wellness.

- Leadership and career development.
 - Succession planning
- Knowledge and skills maintenance.

Emergency Response

- Review of response data and areas for improvement.

Department Facilities (fire stations) and Vehicles

- Fire stations general assessment and needs.
- Station locations and suggestions for reallocation in the number of fire stations and reallocation of resources.

Strategic Priorities

- By-law updates
- Development and utilization of training opportunities

Note: A quick reference recommendations chart entailing all the recommendations can be found in Section 10. The chart has also included brief rationale comments to assist the reader with justification for each recommendation.

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ACRONYMS

AED	Automatic External Defibrillator
AHJ	Authority Having Jurisdiction
CAD	Computer Aided Dispatch
CEMC	Community Emergency Management Coordinator
CRA	Community Risk Assessment
CRTC	Canadian Radio-television and Telecommunications Commission
DPG	Dwelling Protection Grade
E&R	Establishing & Regulating By-law
EAP	Employee Assistance Program
EMG	Emergency Management Group
EOC	Emergency Operation Centre
FMP	Fire Master Plan
EVT	Emergency Vehicle Technician
FESO	Fire and Emergency Services Organization
FPO	Fire Prevention Officer
FPPA	Fire Protection & Prevention Act
FUS	Fire Underwriters Survey
IMS	Incident Management System
HCFD	Haldimand County Fire Department
MOU	Memorandum of Understanding
NFPA	National Fire Protection Association
OAFC	Ontario Association of Fire Chiefs

ACRONYMS

OFM	Office of the Fire Marshal
PPE	Personal Protective Equipment
PFPC	Public Fire Protection Classification
PTSD	Post-Traumatic Stress Disorder
RFP	Request for Proposal
SCBA	Self-Contained Breathing Apparatus
SOG	Standard Operating Guideline
SOP	Standard Operating Policy
STA	Short-term Accommodations
SWOT	Strength, Weakness, Opportunity, Threats
WSIB	Workplace Safety & Insurance Board



Introduction

INTRODUCTION

Project Methodology

EMG has based its review process on the County's initial Request for Proposal (RFP) and the response document submitted by EMG. The specific scope of work noted (in the RFP) was reviewed and included into each section of this document. The FMP review was completed by utilizing best practices, current industry standards, and applicable legislation as the foundation for all work undertaken.

EMG also utilized quantitative and qualitative research methodologies to develop a strong understanding of current and future needs and circumstances of the community.

Overall, the methodology involves a considerable amount of research, documentation review, data analysis, along with stakeholder consultation. Next comes the submission of draft reports, and related recommendations. The final product is a living document that provides a high-level strategic direction for County Council and the Haldimand County Fire Department.

To accomplish the scope of requirements, EMG has:

- Reviewed the Establishing and Regulating By-law.
- Reviewed applicable municipal, provincial, and federal legislations.
- Reviewed planning department documents regarding community and areas of jurisdiction growth projections over the next 10-20 years.
- Reviewed any previous risk assessment, council's strategic priorities and other pertinent documents.
- Prepared a CRA and considered the Community Risk Profile including community building stock, industry, care occupancies, transportation networks, etc.
- Reviewed current service agreements with neighbouring municipalities and any other current documents.
- Gathered information on operational requirements including past and current response statistics (call volumes/response times) to analyze trends, staff availability/needs and response capabilities, etc.
- Reviewed service administration including staffing, organizational structure, policies and procedures, administrative support, record keeping and information management/technology, purchasing and inventory control, public and media relations and customer service.
- Toured the Haldimand County fire stations conducting a location/response analysis.
- Examined fire vehicles, apparatus and equipment including the maintenance program.
- Reviewed Fire Service policies, procedures and emergency response operational guidelines, training programs and records.

- Collected information on the fire prevention program including education programs, inspection reports/data, enforcement data, and investigations.
- Identified and compared industry best practices relating to fire and emergency services performance measurement.
- Reviewed current job descriptions, staff recruitment and retention practices, promotional policy, succession planning and demographics.
- Reviewed the operational and capital budgets along with reserves and current revenue generation programs within the emergency services and the County (development fees).

Based on the previously noted criteria, through meetings with members of Council, the County's Senior leadership Team, firefighters, and community stakeholders, the consulting team was able to complete a thorough review of elements that are working well and areas requiring improvement within the HCFD. Data provided by HCFD was reviewed in relation to all the previously noted items contained in the Haldimand County RFP. This review culminated in a total of 27 recommendations.

Performance Measures and Standards

This FMP has been based upon (but not limited to) key performance indicators that have been identified in national standards and safety regulations such as:

- The *Fire Protection and Prevention Act*.
- The Office of the Fire Marshal and Emergency Management (OFMEM) Communiques.
- The Ontario *Occupational Health and Safety Act (OHSA)*, with reference to the National Institute for Occupational Safety and Health (NIOSH).
- The Ontario Fire Service, Section 21, Advisory Committee Guidance Notes.
- The National Fire Protection Association (NFPA) standards:
 - NFPA 1001 – Standard for Fire Fighter Professional Qualifications
 - NFPA 1002 – Standard for Fire Apparatus Driver/Operator Professional Qualifications
 - NFPA 1021 – Standard for Fire Officer Professional Qualifications
 - NFPA 1031 – Standard for Professional Qualifications for Fire Inspector and Plan Examiner
 - NFPA 1033 – Standard for Professional Qualifications for Fire Investigator
 - NFPA 1035 – Standard on Fire and Life Safety Educator, Public Information Officer, Youth Fire Setter Intervention Specialist and Youth Fire Setter Program Manager Professional Qualifications
 - NFPA 1041 – Standard for Fire Service Instructor Professional Qualifications
 - NFPA 1061 - Professional Qualifications for Public Safety Telecommunications Personnel

- NFPA 1072 – Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications
- NFPA 1201 – Standard for Providing Fire and Emergency Services to the Public
- NFPA 1221 – Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems
- NFPA 1225 – Standard for Emergency Services Communications
- NFPA 1500 – Standard on Emergency Services Occupational Safety, Health, and Wellness Program
- NFPA 1720 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Emergency Services
- NFPA 1730 – Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations
- NFPA 1901 – Standard for Automotive Fire Apparatus
- NFPA 1911 – Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles
- Fire Underwriters Survey (FUS) technical documents

Project Consultants

Although several staff at EMG were involved in the collaboration and completion of this FMP, the overall review was conducted by:

- Lyle Quan, Fire Service Consultant/ VP of Operations - Project Lead
- Rick Monkman, Fire Service Consultant
- Les Karpluk, Fire Service Consultant
- Jeremy Parkin, Fire Service Consultant
- Darryl Culley, President

Together, the team has amassed a considerable amount of experience in all areas of fire and emergency services program development, review, and training. The EMG team has worked on projects that range from fire service reviews, creation of strategic and master fire plans, and development of emergency response programs for clients.



SECTION 1

Community & Fire Department Overview

SECTION 1: COMMUNITY & FIRE DEPARTMENT OVERVIEW

This FMP for the HCFD analyses and identifies current and probable community fire risks and needs over the next 10 years and beyond. This will greatly assist County Council in considering service levels and associated resources, which will then enable the Fire Chief with future planning relating to staffing and response, fire and life safety programming, and asset management. To ensure a comprehensive review is conducted, this review has examined and researched all aspects of HCFD operations including planning, fire prevention, training and education, communications, apparatus and equipment, human resources, station suitability and location, and large-scale emergency preparedness.

1.1 Community Overview

Haldimand County is located on the Niagara Peninsula in Southern Ontario, on the north shore of Lake Erie, and on the Grand River. All municipal services are handled by a single level of government. Municipal offices located in Cayuga.

The population centres in Haldimand are Caledonia, Dunnville, Hagersville, Jarvis, Townsend and Cayuga. Part of the Mississauga of the Credit First Nations Reserve is within the geographic area of Haldimand County but is independent of the county. Most of Haldimand is agricultural land, although some heavy industry, including the former Nanticoke Generating Station, is located here.

Based on the 2021 Statistics Canada information, the enumerated population of Haldimand County, was 49,216, which represents a change of 7.9% from 2016. This compares to the provincial average of 5.8% and the national average of 5.2%¹.

The land area of Haldimand County (City) is 1,250.45 square kilometres and the population density was 39.4 people per square kilometre.

1.2 Fire Service Composition

The HCFD consists of approximately 274 volunteer firefighters located at 11 fire stations. At headquarters in the Cayuga station the full-time staff consists of a Fire Chief, Deputy Fire Chief, two Fire Prevention Officers, a Training Officer, and administrative staff. The fire stations are in Caledonia, Hagersville, Jarvis, Cayuga, Canfield, Canboro, Lowbanks, Dunnville, South Haldimand, Fisherville, and Selkirk. The HCFD responds to approximately 1,000 to 1,200 calls for service per year. These calls range from medical assistance to fire-related incidents, and motor vehicle collisions.

Based on the County's Fire Department Establishing and Regulating By-Law 2398/22, the Fire Chief is the person who is ultimately responsible for the leadership of the Fire Department program to

¹ "Focus on Geography Series, 2021 Census - Haldimand County (Census subdivision)," Statistics Canada, Retrieved December 2022, <https://www12.statcan.gc.ca/census-recensement/2021/as-sa/fogs-spg/page.cfm?dguid=2021A00053528018&lang=E&topic=1>

Council. The Fire Chief of HCFD reports to the General Manager of Community and Development Services in a council-manager style of government. This reporting system allows for the Fire Chief to present reports and updates to Council.

Based on the type of fire department, reference to the National Fire Protection Association (NFPA) 1720 for Volunteer Fire Departments will be used as a reference to such things as staffing and recommended response times.

The organizational chart noted in Figure #2 reflects the general reporting structure within the HCFD.

FIGURE #1: HALDIMAND COUNTY FIRE DEPARTMENT ORGANIZATIONAL CHART

(As noted in By-Law 2398/22)



FIGURE #2: FIRE STATION LOCATIONS



1.3 Governance and Establishing & Regulating By-Law

The Establishing and Regulating (E&R) By-law for a fire service is a key document that outlines the goals and expectations of a fire service. As such, a full review of this By-law is one of the first steps in identifying services to be offered by the HCFD, and identifying if these services line up with the E&R By-law.

Several parts of the E&R By-law need to align with the expectations of the *FPPA* of 1997. The current E&R By-Law 2398/22 was updated in 2022, making this a current document. To assist the Fire Administration in meeting the needs and expectations of Council, the E&R By-law includes the types of incidents that the Fire Department is to respond to, as this will significantly affect department training and equipment needs. The document also lists technical rescues and the level of response available.

The current by-law includes the Goals, Objectives, and Mission Statement. These, too, should be reviewed, renamed, and written as Vision, Values and Mission Statements, which would align with current fire service trends. It is suggested that these be posted in a prominent location, in all the fire stations, to remind the firefighters of their purpose in serving their community.

E&R by-laws should be reviewed yearly and updated to reflect new legislation, changes in the types and levels of response, fire prevention and public education programs, and training expectations. Consideration should include reference to such guidelines and standards as:

- The *FPPA* of 1997.

- The Ontario Fire Code.
- The *Health & Safety Act of Ontario*.
- Section 21 Guidance Notes for Ontario's Fire Services.
- OFM Guidelines concerning staffing and response recommendations.
- Related NFPA Standards that deal with:
 - Training
 - Fire prevention and public safety programs
 - Fire department response goals and objectives
 - Response times.
 - Communications
- By incorporating these guidelines and standards, HCFD will ensure that staffing, training programs, fire prevention initiatives, and response to the community adhere to industry best practices.
- During a review of By-law 2398/22, the following was noted:
- While Schedule A outlines the Vision and Mission statements, many fire departments also have a Values Statement. The HCFD should consider its inclusion in the next update.
- It should also reflect the expected outcomes of the smoke and CO alarm programs.
 - It should identify that Fire Prevention activities will follow to the best of their ability NFPA 1730 and or FUS' recommended frequency for inspections. Failing that, develop an internal goal and its proposed outcomes.
- The document references community fire risk assessments, but not all risks are fire-related, and consideration should be given to removing the word "fire" in Section 1.f).1.v). Regulation 378/18 should be referenced along with the need to review and update annually, the document and the requirement to develop a new CRA every five years.
- The Community Risk Reduction Plan (CRRP) should also be mentioned, with goals and expected outcomes identified.
- It is recommended that the following updates be made to the following clauses:
 - Clause 1.1.i).g) change to "Enforcing Ontario Fire Code and/or Ontario Building Code compliance."
 - Clause 10.j), Carry out the roles and responsibilities of the Mutual Aid Fire Coordinator for Haldimand County.
- Clause 12. b) v) should be reworded as "Establish a pre-incident plan and program that identifies priority locations that require a plan completed. The goal is to complete three plans by each station, each year, as a minimum."
- The document does not speak to the fire apparatus and the need to follow FUS recommended replacement schedule and that the apparatus shall be built per NFPA 1901 and ULC S515-12.

- The document does not mention any of the mandated programs, such as:
 - A Mental Wellness Program
 - A Respiratory Program
- Schedule B's Organizational Chart should be reviewed with the following amendments:
 - The lowest box, "Volunteer Firefighters," changed to a box for each fire station that includes the station name and number.
 - Change the Firefighters reporting to a Fire Prevention Officer to the Deputy Fire Chief.
 - Identify the Fire Prevention Officers in one box, with (2), to identify the number of staff, rather than a box for each member. Have them also report directly to the Deputy Fire Chief.
 - Add a box for a PFLSE once a dedicated one is acquired.
- It was noted that there was no discussion regarding dispatching and communications provided by a third party.

1.4 Assessment of Current Fire Service By-Laws

The other fire service-related by-laws reviewed for this FMP include:

- Development Charges By-Law 2041/19 and Amended By-Law 2347/22
- Open Air Burning By-Law 1662/16
- Noise By-Law 1098/10
- Establishing & Regulating By-Law 1002/09 (Referenced in Section 1.3)
- Fire Dispatching Agreement with St. Catharines By-Law 2019-7 (Referenced in Section 5)
- Fees and Service Charges By-Law 2344/22 (Referenced in Section 9)
- Mutual Aid Plan By-Law 2006-76 (Referenced in Section 8)

1.4.1 Open Air Burning By-Law – 1662/16

The Open-Air Burning By-Law stipulates the parameters for outdoor burning within Haldimand County, which came into effect in May 2016. This by-law was an amendment to the original Open Air Burning By-Law, 1021/09, passed in 2009.

This by-law is all-encompassing and covers a variety of topics. The amended by-law should reference the Ontario Fire Code Article 2.4.4.4 and the Forest Fire Prevention Act Regulation 207/96.

This by-law is six years old, and the Fire Chief should review and amend it as required for Council's approval.

1.4.2 Fireworks By-Law

Haldimand County does not have a stand-alone by-law regarding the sale and discharge of fireworks. The Noise By-Law 1098/10 does mention some references to fireworks. The County should consider developing a by-law specific to fireworks, including sales, training, regulations, discharging, and all Federal and Provincial Statutes regulating fireworks.

Referencing the actual federal regulation regarding the training required to set off commercial and pyrotechnic fireworks should be included in the document. Doing so will direct those who need this training and education and assist them in locating the supporting information. The by-law should list the differentiation between the consumer, display, and pyrotechnic fireworks, as listed in the *Explosives Act, R.S. c. E-15*.

The by-law should include the importance of fire safety while setting off fireworks. Therefore, it would also be appropriate to have safety information on the proper method of setting off fireworks and the equipment worn by those setting off consumer fireworks. Along with this document, it will also be essential to outline the need for some form of extinguishment that should be readily available such as a pail of water and a fire extinguisher or garden hose. Not only will this showcase the importance of fire safety, but it will also provide the Fire Department with the ability to educate publicly. The municipal authority to control fireworks rests within the Ontario Fire Code O. Reg. 213/07, Division B, Part 5, ss 5.2.

The document should also include the prohibited use of fireworks during a fire ban, along with a list of any celebrational and holiday seasons in which fireworks would be allowed.

1.4.5 Development Charges By-Law 2347/22

A Development Charges By-Law was enacted as permitted by the Province of Ontario's *Development Charges Act, S.O. 1997, c27*. The *Act's* purpose is to allow municipalities to collect a fee for new construction to offset the costs incurred in enhancing service provision levels. The payments are allocated towards fire protection, roads, recreation facilities, water and sewer system upgrades, paramedic services, Public Works, etc.

Council approved the current By-Law in 2022, and the fees charged are in line with other municipalities.

Newly Sitting Council Awareness:

Educating new sitting councils on the fire service-related by-laws every four years, will allow a newly sitting council to understand the full scope of the Fire Department's level of service and commitment to the community.

Section #1 - Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
1	The Fire Administration brings forth a revised version of the E&R By-Law for the Council's approval and ensures its annual review and updates. •And that all other by-laws noted in this document be reviewed and updated as required. All by-laws should be reviewed annually to ensure currency of document.	Staff time	Short-term (1-3 years)	Having an up-to-date E&R By-Law will guide the operations of the HCFD and identifies response guidelines, fire prevention and public education programs and levels of training.	A new By-Law was presented to Council in 2022. As such, going forward, the Fire Chief should review the document annually to ensure the document is current and continues to reflect fire department operations and needs.



SECTION 2

Planning

SECTION 2: PLANNING

Planning is a key function of any organization and should be done with a focus on the present needs of the community, coupled with its future growth and how this will affect the service demands on the emergency services. The initial phase of such planning efforts is to identify the strengths, weaknesses, opportunities, and threats affecting the department and the community it serves.

2.1 Community Safety – Four Lines of Defence

The Office of the Fire Marshal and Emergency Management's (OFMEM) community safety model revolves around three specific lines of defence - Public Education, Safety Standard and Enforcement, and Emergency Response. EMG views Emergency Management as the fourth, inclusive line of defence, and have added this into the overall concept of community safety.

- i. **Public Education** – educating residents has proven to be the most effective means in reducing and preventing the incidences of fire and property damage. Reducing the number of fires before they start and identifying how the County will continue to meet the fire education needs while the County grows. More information on this topic can be found in Section 4.
- ii. **Safety Standards and Enforcement** – ensuring that the inspection and enforcement of fire codes occur so buildings meet the required safety standards. More information on this topic can be found in Section 4.
- iii. **Emergency Response** – the availability of well trained and well-equipped firefighters to respond and effectively mitigate the incident is the last defence. The staff, equipment and fire station locations impact how the emergency is mitigated. More information on this topic can be found in Section 5.
- iv. **Emergency Management** – a County is legislated to have an emergency preparedness program to ensure the safety of the residents of the community by having a training, education, response, and mitigation plan in place for any possible emergency the community may encounter. More information on this topic can be found in Section 8.



Along with these four lines of defence, the following industry best practices help to inform a fire department of industry expectations. Neither the NFPA and/or the FUS are legislated requirements, and do not have to be followed, but utilizing them to improve a community's fire service is encouraged by EMG.

2.2 National Fire Protection Association (NFPA) 1201

The NFPA Standard 1201 – *Standard for Providing Fire and Emergency Services to the Public* makes note of the services that should be offered and how they are to be delivered based on the composition of an emergency service.

Section 4.3.5 notes:

The Fire and Emergency Services Organization (FESO) shall provide customer service-oriented programs and procedures to accomplish the following:

1. Prevent fire, injuries, and deaths from emergencies and disasters.
2. Mitigate fire, injuries, deaths, property damage, and environmental damage from emergencies and disasters.
3. Recover from fires, emergencies, and disasters.
4. Protect critical infrastructure.
5. Sustain economic viability.
6. Protect cultural resources.

To accomplish this, an FESO must ensure open and timely communications with the CAO and governing body (council), create a masterplan for the organization, and ensure there are mutual aid and automatic aid programs in place, along with an asset control system and maintenance program.

To provide an emergency service clearer focus on what the ultimate goals for emergency response criteria are, the NFPA suggests that response times should be used as a primary performance measure in emergency services. NFPA 1720 refers to goals and expectation for volunteer emergency services that has been incorporated into the evaluation of the emergency services' response and staffing needs. More discussion in relation to the 1720 standard will be presented in Section 5.

2.3 Office of the Fire Marshal

Also, with the OFM now requiring NFPA standards as the minimum benchmark for training and certification by all Ontario fire departments, it is no longer simply prudent to be current with such best practices. This type of training is now mandatory.

2.4 Strengths, Weaknesses, Opportunities, and Threats (SWOT)

The strengths and weaknesses portion of a SWOT analysis are based on an internal review that identifies what is working well, along with recognizing areas for improvement. The opportunities and threats portion of the SWOT are related to external influences and how these influences affect the operations and response capabilities of an emergency service.

2.4.1 Strengths

- Haldimand County benefits from having 11 fire stations, which has worked well for the Fire Department in relation to responding to calls for service within the community.
 - However, EMG has noted three options for station consolidation in Section #6. EMG recommends that the County explore the feasibility of station consolidation in combination with potential service delivery changes (e.g., career firefighter).
- The department does have a full-time Training Division and Fire Prevention Division to ensure that the majority of mandated fire safety inspections and public education needs are being met.
- The HCFD has strong relationships with its partner emergency services (police and EMS), along with mutual and automatic aid agreements in place with other fire services to assist with general response needs.

2.4.2 Weaknesses

- HCFD, as with many composite emergency services, depends on its team of dedicated volunteer firefighters (for response to calls). But at times it can be challenged when it comes to having enough volunteer firefighters for these responses.
 - Due to other commitments, such as their full-time jobs and family obligations, there is no guarantee the volunteer firefighters will be available to respond as needed, which in turn can create a condition where possible low numbers of on-scene staffing levels may occur.
- Some of the fire stations are in need of upgrades to ensure they continue to meet the needs of the service in relation to equipment storage, shower facilities, and removal of firefighters' gear from diesel exhaust contamination.
- There is a full-time Training Officer. However, with 11 fire stations and over 270 volunteer firefighters, it will be a challenge to ensure that training needs and expectations outlined in such documents as the NFPA, and the *Occupational Health and Safety Act* are being delivered and documented on a consistent basis.
 - With the OFM implementing training standards and certification requirements for all positions within the fire service, even more training will be required (by all fire departments in Ontario).

2.4.3 Opportunities

- HCFD has a history of engaging in partnerships with bordering departments for such things as joint training, cross border responses, mutual aid and fire service agreements that benefit both communities.
 - Continuing to build on these partnerships will improve available options in relation to meeting future training and certifications requirements.

- Recommendations are being made in this report to consider the consolidation of fire stations to reduce costs, while continuing to provide the same or even an improved level of service to the community.
 - No one likes to see a fire station close, but if such a recommendation has its merits, then it needs to be considered and implemented.
 - As such, EMG is recommending that the County explore the feasibility of station consolidation in combination with potential service delivery changes (e.g., career firefighter)

2.4.4 Threats/Challenges

- Major emergencies stressing the availability and perhaps even greater dependence on volunteer suppression staffing resources and equipment must be considered as the community's population continues to grow and age.
- Response by the volunteer firefighters is a challenge due to their other commitments, such as full-time jobs within or outside of the community. This is a challenge for most emergency services that may need to depend on responses from the volunteer firefighters.
 - The level of response should be monitored for both daytime (with a focus on the workweek) and evenings to identify if any issues exist.
- The threat of climate change and its impact on weather patterns is an increasing challenge for communities to deal with inclement weather incidents, such as freezing rain/ice storms. As they are becoming more commonplace, they need to be part of the emergency response program for each community.
 - These changes in climate conditions, along with the resulting frequency and severity of incidents, has also predicated the need for a larger response component to these emergencies.
- All these noted challenges need to be monitored, evaluated, and reported to Council by the Fire Chief to ensure that HCFD is meeting the needs and expectations of the community.

2.5 Stakeholder Surveys

To get a complete understanding of how well HCFD is meeting the needs of the community and its volunteer force, both community and staff input were requested in the form of a blind survey, via Survey Monkey. This input was helpful in developing recommendations to assist Haldimand County Council with future strategic decision making as it relates to the fire service. These surveys also help to identify what is working well, along with possible areas for improvement.

2.5.1 External Surveys

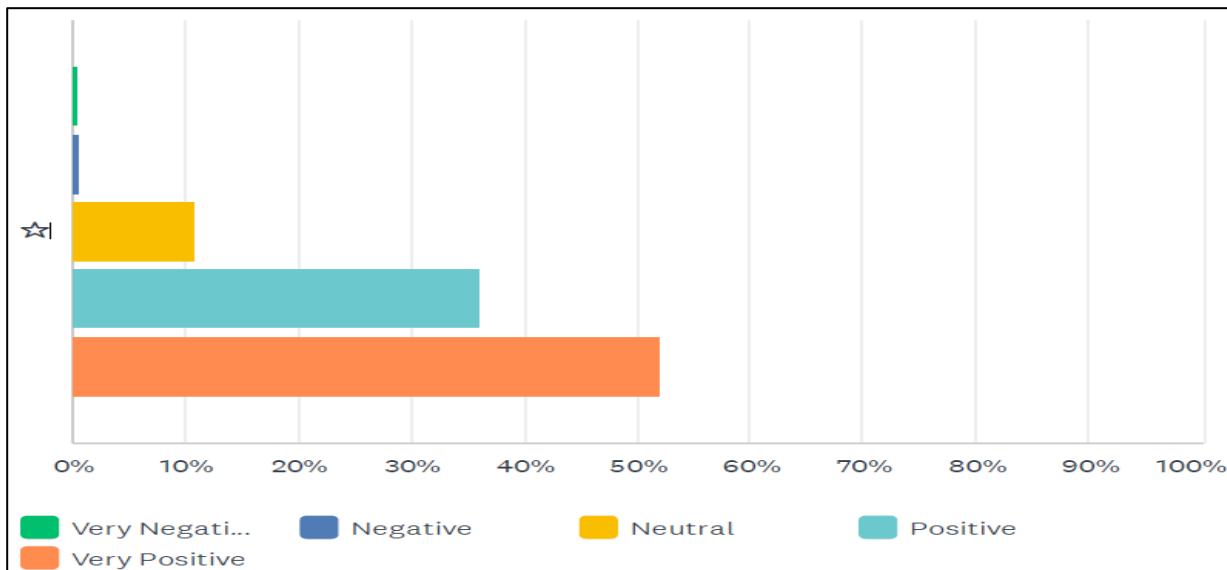
There was a total of 310 external surveys completed. Based on the information received The highlighted areas were extremely important to the respondents:

- Response to calls

- Response for service
- Relevant training
- Purchase and upkeep of equipment

Other information received, include:

- The fire department is viewed as professional, “good to top notch”, and a good community partner as noted in the following chart.



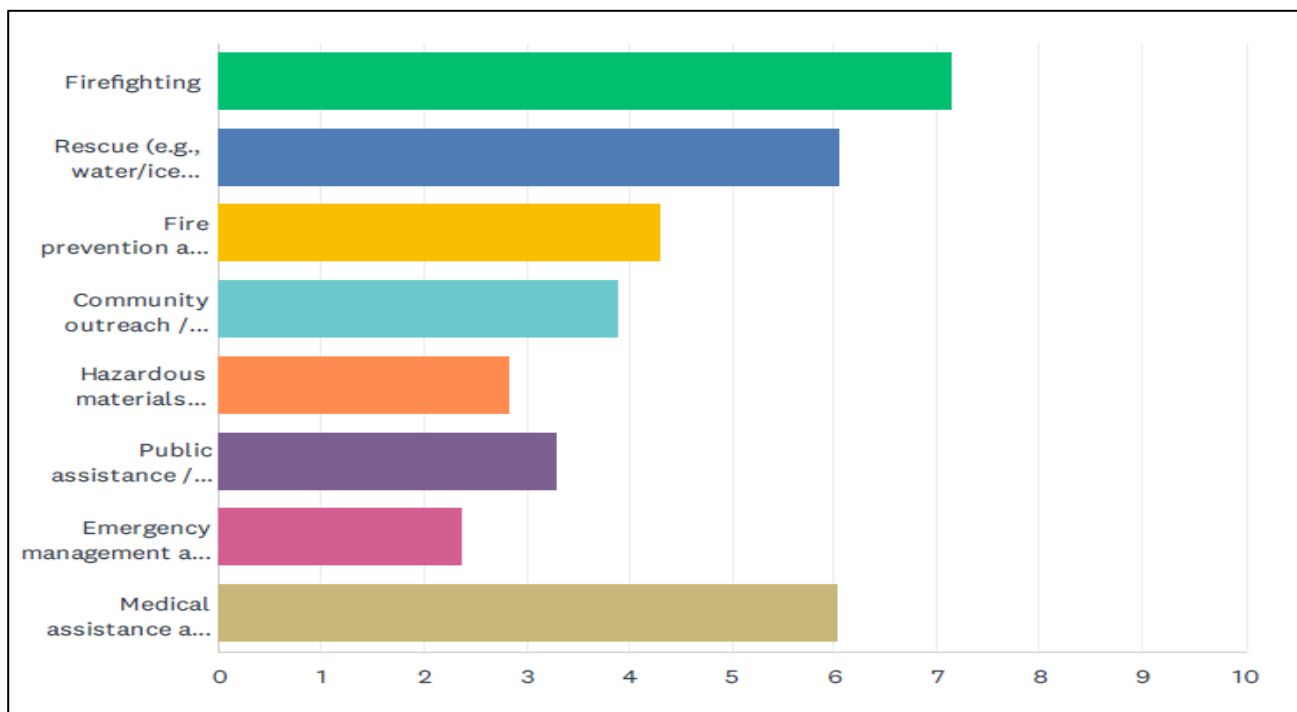
- Some suggestions that the external stakeholders would like to see an increase:
 - More attendance at community events
 - More home inspections
 - More education and safety programs
- The top emergency services most important to the respondents are:
 - Firefighting
 - Rescue
 - Medical Assistance
 - Hazardous materials response, and
 - Emergency management
- In relation to top issues/challenges:
 - Cost of supplying the services to the community
 - Dealing with cutbacks and aging equipment
 - Hiring of volunteers and keeping their skills current
 - Climate change

- Continue to meet the needs of a growing population.

2.5.2 Internal Surveys

There was a total of 33 internal surveys completed (by the firefighters). Much of the information received from the internal surveys identified the following:

- Most of the staff are very proud of the service that they offer to the community and believe that the community feels that they are served by a professional and dedicated group of firefighters.
- Overall, the firefighters expressed a concern about some of the present emergency services facilities. There is a lack of proper space for equipment, vehicles, office, and crew quarters.
- The top challenges put forward are the continued need to retain volunteer staff, ensuring properly trained and equipped staff in meeting response challenges.
- It was also noted that more community outreach and fire safety programs need to be delivered by the HCFD.
- The question on ranking the priority of services from 1 to 8 resulted in the following chart (from the firefighters):



2.5.3 Senior Staff Interviews

Input from County senior staff that were interviewed supported a good working relationship between the Fire Department and other staff. There is a real sense of teamwork amongst the group.

- HCFD is seen as a valued member of the team.

- All the departments are focused on meeting the needs of the community, as identified with the goals and expectations of Council.
- Key question/concern is the ability of the fire department to meet the future growth of the community.

2.5.4 Council Interviews

All members of Council that were interviewed and/or responded in writing to the survey noted that they are proud of the Fire Department and are in full support of this master plan review and are interested in the recommendations that will result from the review.

The key points noted were:

- Continue to support the Fire Department in its endeavours to meeting the needs of the community.
- There will be a great deal of growth occurring within the County over the next 10 years and they want the fire department to have the tools, staff and facilities to meet this growth.
 - This could also come in the form of introducing a full-time contingent into the fire department in a manner that is financially feasible for the community.
- Ensure the firefighters have the training and equipment they need to effectively do their jobs.
- As for fire stations, there was a variety of comments that ranged from no reduction of stations, to finding the best balance in the number of fire stations
 - Overall, the goal is to provide the best possible level of coverage, no matter what the number of fire stations would be.

The surveys helped to paint a picture of the fire department from all angles, which helped to confirm that the community, council and staff are all seeing the need to support the fire department in relation to meeting the growing needs of the community. EMG has taken this input into consideration while developing this master plan document and its recommendations.

2.6 Policies, Guidelines, & Standard Operating Procedures

Fire department policies and guidelines have immense value for a department. They are the critical foundation of a department's success. The backbone of any fire service is its policies, SOPs, and SOGs, which govern and provide direction on its operations.

- **A policy** is a high-level statement that expects consistent compliance. It is very little to no flexibility permitted with a policy.
- **A guideline** is a standard with an acceptable level of quality or attainment. It provides direction on how to act in each situation with non-mandatory controls.
- **A procedure** is a requirement with an acceptable level of quality or accomplishment in a series of detailed steps to accomplish an end. There are step-by-step instructions for execution and completion.

HCFD's SOGs are numerous, encompassing, and detailed. To ensure all the SOGs are current, the Fire Chief and Deputy Fire Chief review and revise the existing policies and SOGs and develop new policies and SOGs, as required. Some fire departments review a third of their SOGs annually. Adopting this procedure provides the entire set of documents to receive a full review every three years.

Reviewing the SOGs can be an incredibly detailed and very involved process. HCFD relies on the Chief Officers to maintain current SOGs and develop new ones as circumstances change. Writing new SOGs and maintaining existing ones is a daunting task to leave to just the Fire Chief and Deputy to look after. Establishing a committee meeting regularly to develop new SOGs and review older ones would relieve some of the pressures placed on the Chief Officers. The development of a structured SOG Committee that creates its Terms of Reference would be a great benefit to the HCFD in several ways:

- Updated and current SOGs.
- Staff would be more involved in the fire department operations.
- Safer environment for members to work.

The Section 21 Committee is part of the *OHS*A initiative for firefighter safety. A good source of information is Section 21 Guidance notes that are kept current by a provincial team of fire service personnel. The many NFPA Standards are also a good resource for developing SOGs.

For a fire department to operate safely and efficiently, all members must adhere to all policies, SOGs, and SOPs and those that fail to do so be held accountable.

Section #2 - Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
2	Establish an SOG Committee representing all divisions of the HCFD that develops new SOGs and reviews current ones regularly.	Staff Time	Short-term (1-3 years)	Establishing an SOG committee will aid in maintaining the information in the data base to be current while allowing the participation of HCFD members to determine the fire department's operations.	This is a best practice recommendation that creates greater involvement by the firefighters.



SECTION

3

Risk Assessment

SECTION 3: RISK ASSESSMENT

3.1 Community Risk Assessment

Risk assessment is the process used to identify the level of fire protection required within the boundary of the County. It measures the probability and consequence of an adverse effect on health, property, organization, environment, or community due to an event, activity, or operation.

Council has the authority to establish fire protection within their County. The Fire Chief is responsible for informing the Council of all risks existing within the community. Based on this information, Council can make an informed decision on the level of service to be achieved.

The Province of Ontario Regulation 378/18 CRA states, "a community risk assessment is a process of identifying, analyzing, evaluating and prioritizing risk to public safety to inform decisions about the provision of fire protection."

Effective July 1st, 2019, the regulation states that every Municipality shall complete a CRA by 2024, with renewal to occur every five years. The Municipality is required to review the document annually.

The accumulation and analysis of these factors will assist in applying this information in identifying potential risk scenarios. It is during the assessment of the information gathered, which includes the likelihood of these scenarios occurring and subsequent consequences, that will assist in answering the following questions:

- What could happen?
- When could it happen?
- Where could it happen?
- Who could it happen to?
- Why could it happen?
- How likely could it happen?
- How bad would it be if it happened?
- What programs can be developed to mitigate or prevent any or all the above?

Once answered, these questions will frame the basis for formulating and prioritizing risk management decisions to reduce the likelihood of these incidents and mitigate their impact.

The completed CRA may identify gaps and areas where actual conditions vary from the desired outcomes. Data to be reviewed for each mandatory Profile include:

- **Demographics Profile** – age, gender, educational attainment, socioeconomic makeup, vulnerable individuals or occupancies, transient population, ethnic and cultural considerations.
- **Critical Infrastructure Profile** – the facilities and services that contribute to the interconnected networks, services and systems that meet vital human needs, sustain the economy, and protect public safety and security.
- **Geographic Profile** – waterways, highways, canyons and other landforms, railroads, wildland-urban interface, bridges, and other specific features of the community.
- **Building Stock Profile** – potential high-risk occupancies, whether residential, commercial, or industrial, building density, building code classifications, age of the structure(s), occupancies that could be a high life safety risk, historic buildings.
- **Public Safety Response Profile** – how are resources distributed within the community, their deployment and usage, types of incidents responded to and the frequency of such incidents, including the seasonal variations and time of day.
- **Community Service Profile** – existing planning and zoning committees, schools, seniors' organizations, ratepayers' associations, mental health organizations, faith-based groups, and cultural/ethnic groups.
- **Hazard Profile** – human, technological, or natural hazards.
- **Economic Profile** – infrastructure, local employers and industries, institutions, community's tax base, local attractions.
- **Past Loss/Event Profile** – consideration to the impact and frequency of an event; identify significant acute events with a low frequency but a high impact or small chronic events with a high frequency with a low impact.

The Haldimand County CRA is a separate document from the MFP. When the Fire Chief has reviewed its contents a CRRP should be developed and implemented.

3.1.2 Haldimand County Fire Loss Statistics

The OFM provided the following information and documents received and taken from the past reports supplied to EMG. The following data is an overview of concerns within Haldimand County and from the highest to the lowest level for ease of review. This information will assist in formulating and implementing fire prevention and public safety awareness initiatives.

Haldimand County Fire Loss by Property Classification

Based on the information received, the following building classifications for property loss are listed based on the number of fires in each occupancy from 2017 to 2021:

- Group C – Residential occupancies
- Group F – Industrial

- Classified under National Farm Building Code
- Group A - Assembly
- Structures/Properties not classified by Ontario Building Code
- Group B – Care and Detention
- Group D – Business and Personal Services
- Group E - Mercantile

Haldimand County Reported Fire Cause

Assessing the possible cause of the fires is essential when identifying potential trends or areas to be considered for introducing additional public education on fire prevention initiatives as part of the community fire protection plan.

The leading causes of fires were:

- Misuse of ignition source/materials first ignited.
- Unintentional undetermined
- Mechanical/electrical failure
- Other
- Other unintentional
- Arson
- Design/construction/maintenance deficiency
- Undetermined

Haldimand County Ignition Source Class

The leading causes for ignition sources were:

- Undetermined
- Miscellaneous
- Exposure
- Heating equipment, chimney, etc.
- Cooking equipment
- Open flame tools, smokers' articles
- Electrical distribution equipment
- Other electrical, mechanical
- Lighting equipment

- Appliances
- Processing equipment

The following is an overview of the risks identified in Haldimand County as taken from the CRA, 2022 Edition.

3.2 Summary

The following summary outlines the top risks to life safety and property and the suggested means of reducing or mitigating the risks. Using the preferred treatment options, the Fire Chief will put forward strategies to address the risks, including public education and Fire Code enforcement, within the level of fire service provision. The Council will set the level of service. These decisions will form the basis of Haldimand County's community risk mitigation strategies.

A thorough review coupled with sound strategic planning will garner successes in the form of fewer fires, reduced fire-related injuries, and lower dollar property loss through ongoing fire prevention initiatives. These fire prevention initiatives would include early warning detection systems (i.e., smoke alarms), proactive inspections, and public education.

***Note:** The following are not in the order of their level of risk.*

Bodies of Water – There is one main lake (Lake Erie) found in the County and the Grand River that runs through the County. There is always the risk of incidents involving marine vessels, such as collisions, taking on water, and catching fire. SOGs must comply with industry standards, regulations and legislation when responding to ice and water emergencies.

HCFD can mitigate an ice and water rescue to the technicians' level, which is offshore based. Federal Regulations state that any fire service like the HCFD must perform water rescues under the commercial vessel regulations, which also includes training.

Radio System – A fully functional and reliable radio system is a requirement for modern-day fire service. Failing this may put the lives of the public and firefighters in peril. The current system uses the simplex system on the analogue platform. Other fire departments are receiving stronger and more distant signals by moving to the innovative modern digital platform using repeaters. A radio system audit that analyzes coverage and the entire infrastructure is also available for review.

Fire Stations – A comprehensive evaluation of each fire station is in the FMP document. The section reviews current locations and response times for each station. It may suggest either rebuilding, adding or consolidating fire stations for better levels of coverage.

Hazardous Material Incidents – A HAZMAT incident risk occurring along the County's rail lines. Large quantities of hazardous goods are transported daily along these rail lines. All means of transporting hazardous materials are at risk of domestic terrorism.

Railway Incidents – Risk of train derailments requiring the evacuation of residents if a HAZMAT incident. A derailment involving a passenger train could result in a mass casualty event. Any derailment may require additional resources brought in to assist the County. Trains are at risk of a domestic terrorist incident regardless of whether they carry hazardous materials.

Haldimand County - New residential occupancies will increase the permanent and seasonal populous. As a result, there may be an increased demand for fire inspections and public education events. The HCFD should review the time spent and workloads placed on fire prevention personnel which may require additional resources to meet the demand and current industry standards.

Technical Rescues – Trench, Confined Space, High and Low Angle –It is noted in the mutual aid plan that Hamilton Fire is identified to assist with technical rescues.

However, HCFD in an ongoing effort, should ensure they comply with the Section 21 Guidance Notes by making sure all firefighters receive training to the awareness level for all technical rescues, including elevators.

Weather Events – The County and surrounding areas have experienced several severe storms and tornadoes over the past decade. Communities in the Province are now installing storm sirens, as seen in the United States. The District of Muskoka and the Muskoka Emergency Response Committee have launched the "#AlertMuskoka" App to notify residents of pending emergencies. In cooperation with surrounding Municipalities, Haldimand County should conduct a needs analysis to determine if such an app would be advantageous.

Domestic Terrorism – Can occur in any community and include anything from an active shooter to sabotaging municipal infrastructure such as water treatment plants and cyber attacks, like many Ontario municipalities experienced a few years ago. Use *NFPA 3000 Standard for an Active Shooter/ Hostile Event Response (ASHER) Program* as a reference in conducting public education on the subject. As well as provide training in cooperation with the OPP Detachment.

There are recreation-based resorts and camps in Haldimand County. These include faith-based summer camps. There is always a risk of an attack on any one of them. Haldimand County should work with each location in developing, implementing, and practicing an Emergency Plan in the event of an attack based on NFPA 3000.

Industries – Several industries pose a risk to the County, be it in the form of a fire, hazardous materials incident, closure, or injuries to staff. High-hazard occupancies need to be fire inspected every three months according to FUS and annually for medium and low risk.

Demographics – The County has an increasing senior demographic that may eventually reside in a senior's residence. As the senior demographic increases, so does the need for housing. As the aging population increases, there could be additional buildings for seniors in the future. These occupancies require annual inspections and fire drills. Ontario Regulation 364/13 makes it

mandatory for all vulnerable occupancies to be inspected and conduct fire drills. To correctly complete a fire drill, an observer from HCFD needs to be in attendance.

Building Stock - With existing and new residents living in the County, there could be illegal second units and apartments. Haldimand County's current Zoning By-Law authorizes additional housing units in a detached dwelling and allows other residency units in an accessory building to the detached home. Second suites must meet the OBC and the OFC requirements. Haldimand County should require each dwelling to be registered with the County and inspected by HCFD Fire Prevention personnel.

There is also an unknown number of short-term accommodations in the County. No by-law regulates these accommodations. Owners of these businesses must follow Municipal by-laws such as Property Standards and Open-Air Fires. A Short-Term Accommodations by-law should be written for Council's consideration to regulate this industry that also calls for their registry and the annual fire inspection of these locations.

Building Stock – The OFMEM has identified the risks associated with occupancies, including lightweight construction (LWC) practices. Municipalities are to inventory all building stock, including locations with some form of LWC. HCFD and the Building Department should collaborate to develop an ongoing list of all building stock based on the OBC Occupancy Classifications.

3.3 Current Condition

The CRA identified that there had been significant building stock growth in the community (namely residential, but not exclusively). This growth has impacted the Demographic Profile and, consequently, the needs and circumstances for delivering services by the Fire Department. As the population and infrastructure grow to meet the community's needs, the types of calls and related frequency will need monitoring. The Fire Chief must ensure that they are meeting the community's requirements and the internal training and equipment needs of its Firefighters to do their jobs efficiently and effectively.

As with many communities in Ontario, Second Suites and Short-term Rentals are becoming problematic. While permitted in Haldimand County, there are no stand-alone by-laws that regulate their use or know how many are in service.

Fire Prevention and Public Education initiatives, HCFD's Fire Prevention Division has inspected all the vulnerable occupancies (care facilities), schools, and other special needs facilities annually as legislated to complete.

The HCFD should be prepared for technical rescue incidents by entering into response agreements with either a third party or another fire service to mitigate these incidents. All HCFD members require training to at least the awareness level for all technical rescues to comply with the Ministry of Labour, Section 21, Guidance Notes. The OFMEM would be a

resource for the Fire Chief to understand better the response capabilities of other fire services in the area to protect Haldimand County residents better.

3.4 Community Risk Reduction Plan

Now that the CRA is completed and all risks identified, developing a CRRP should begin. When properly applied, the CRRP coordinates emergency operations with prevention and mitigation efforts throughout the community and at the fire station level. The involvement of fire station personnel is critical for gathering local risk data and performing activities necessary to implement the CRRP.

A CRRP improves firefighters' and emergency responders' safety and occupational health, reducing line-of-duty deaths. Aside from the primary benefits to the community, a CRRP can positively impact the fire department. Due in part to the number of fire inspections and public education events completed, enforcement of the OFC, and the reduction in the number of fires, resulting from these measures.

In addition to firefighter safety, there are several other reasons why departments should begin the process of developing a CRRP, including:

- The presence of new and emerging hazards and managed risks makes the community safer.
- Declining budgets among fire departments and local governments, thereby better resource allocation.
- A rapidly changing community demographics.
- Community engagement.
- May avoid potential ramifications of hazards that were ignored or not fully addressed.
- Better defines the fire department's purpose and value within the community beyond just fighting fires.

Completing the Community Risk Assessment and this FMP document provides the Fire Chief with the components needed for the Risk Reduction Plan. Utilizing the information and recommendations found within the CRA and FMP forms the foundation of the CRRP.

There are several steps in the development of a CRRP:

Identification and Prioritization – Upon completing the CRA and the risks identified, the priorities are determined, and the results are itemized for use in the remaining planning process. The document does not need to be complex or complicated but in a clear and concise format that enables the reader to understand the risks and those that should have the highest priority.

During this process, consider the following:

- Why and how the risk occurs and, in some cases, when.
- Who does the risk affect the most, and why?
- How are the community and the fire department affected by the threat?
- What about this risk ranks it higher than others?

Develop Mitigation Strategies & Tactics – This requires input from various individuals involved, including those most affected by the risk. Stakeholder involvement is paramount and should always be in the decision-making process. It will necessitate decisions to determine what tactics and strategies will be necessary to prevent and mitigate those risks with the highest priority.

Five elements to be reviewed during the development of the plan include:

Education: Determining the appropriate type and mix of educational messaging necessary to inform the public and effect behavioural change. More encompassing education through different mediums of social media.

Enforcement: Identifying whether more vigorous enforcement is necessary or if newer codes and standards need adoption. Notification of the public on successful convictions through the justice system.

Engineering: Determine whether there are engineering or technological solutions to address the identified risk(s).

Emergency Response: Changes to the emergency response protocols, SOGs, SOPs, and policies to better meet a specific risk or need. It may require additional resources such as stations, apparatus, equipment, staffing, and enhanced levels of training.

Economic Incentive: Identifying whether financial incentives will improve compliance or help increase awareness of community needs.

Prepare the CRRP - With the risks now identified and prioritized, the strategies and tactics are determined for prevention and mitigation. It will be necessary to develop a written plan.

Implementation of the CRRP – The completed CRRP usually involves several steps. The process should include timelines, which can be quick and focused or slow and methodical. The implementation may rely on the fire department, community partners, or a combination.

Monitor the Progress, Evaluate Your Findings & Modify the CRRP – The final step involves monitoring and evaluating the plan's effectiveness and adjusting, as necessary. This process will enable the organization to determine if they are achieving their desired goals and if the program is or is not impacting them. Ongoing monitoring allows for plan modifications promptly.

The CRRP is a gateway to the reinvention of the fire service culture that requires approval, buy-in from the Council, vision, and strong leadership to champion needed change and navigate the

process. A successful CRRP will bring additional resources to the effort through partnerships within the fire department and the community it serves. The community-based approach increases public safety because of the collective work within the community to understand, assess, and provide inclusive solutions to community safety issues.

3.5 Next Steps

As the community grows, the frequency of calls and the need for service will grow. Based on this growth, there may be a future need for additional staff in the Fire Prevention Office, the Fire Suppression Division, and Training. Supporting information relating to the staffing needs of each division can be found in the associated sections within this FMP document.

The provincial government has recently introduced updates to *FPPA*, which outlines the responsibilities of a community and its fire department concerning service level expectations. The updates to the *Act* are:

- Certification for Firefighters, fire service instructors (training officers) and fire service inspectors (fire prevention inspectors)
- Mandatory Reporting requirements
- Mandatory community risk assessments review annually, and a new one is to be completed every five years.

These three additions will put an even more significant strain on fire departments to ensure proper training, reporting and completion of CRAs.

3.6 Fire Underwriters Survey

The Fire Underwriters Survey (FUS) is a national organization that provides data on public fire protection for fire insurance statistical work and underwriting purposes of subscribing insurance companies. This type of survey can also assist a community in understanding what risks and/or challenges exist within the community, along with recommendations by FUS for improvements.

Subscribers of FUS represent approximately 85% of the private sector property and casualty insurers in Canada.

FUS Certified Fire Protection Specialists conduct detailed field surveys of the fire risks, and defences maintained in built-up communities, including incorporated and unincorporated communities across Canada. The results of these surveys will establish a Public Fire Protection Classification (PFPC) for each Municipality. Underwriters also use the PFPC to determine the amount of risk they are willing to assume in each community or section of a community. While the FUS is not involved in setting rates, the information provided through the Fire Insurance Grading Index is critical in developing commercial lines property insurance rates.

The overall intent of the PFPC system is to provide a standardized measure of the ability of the protective facilities of a community to prevent and control significant fires. This process is accomplished by evaluating, in detail, the adequacy, reliability, strength, and efficiency of the protective facilities and comparing the level of protection against the level of fire risk in the built environment.

The FUS also uses PFPC information to develop the Dwelling Protection Grade (DPG), used by personal lines insurers to determine property insurance rates for detached dwellings with no more than two dwelling units. The DPG is a measure of the ability of the fire services of a community to prevent and control structure fires in detached dwellings by evaluating the adequacy, reliability, strength, and efficiency of the fire department and comparing the level of protection against the level of fire risk associated with a typical dwelling.

The fire insurance grading system does not consider past fire loss records but rather fire potential based on the physical structure and makeup of the built environment. Every insurance company has a formula for calculating its underwriting capacities and insurance rates; however, the PFPC and DPG classifications are extremely useful to insurers in determining the level of insurable risk in a community. When a community improves its PFPC or DPG, property owners may see a reduction in their insurance rates, while their underwriting capacities may increase.

In 2018, FUS completed a new review of HCFD's fire protection capabilities. The following is an excerpt of that review:

In 2018 the FUS conducted an analysis of the fire insurance classification for the HCFD with improvements in the Public Fire Protection Classification (PFPC) for Fire Station #4 and Fire Station #9. The improvements were due to insured properties within 150 m of a hydrant and within 5 km of a fire hall. However, there were three fire stations where the Dwelling Protection Grade (DPG) was changed due to the stations being composed solely of volunteer firefighters.

A review was conducted on the results of the FUS and there were consistencies in where some gaps exist with the Fire Department grading items.

- *Engine Service*
- *Distribution of Companies*
- *Total Fire Force Available*
- *Engine and Ladder Company Unit Manning*
- *Training and Qualifications*
- *Fire Ground Operations*
- *Pre-Incident Planning*

In terms of the Water Supply grading items, there were two consistencies as noted below;

- *Fire Flow Delivery by Mains*

- *Distribution of Hydrants*

The FUS grading system provides an in-depth analysis of the Fire Department, Water Supply, Fire Safety Control and Communications within the Haldimand County Fire Department.

Recommendation: *The HCFD should contact the FUS and identify how they can improve upon the fire department grading and develop a 3-5 plan to address the gaps.*

Rationale: *An improvement in the grading system may improve the insurance grading for the Haldimand County and potentially reduce insurance costs.*

Recommendation: *The HCFD should strive to improve the Fire Department and Water Supply grading within the next 5-years and implement a hydrant flow testing program that provides records for the water supply capacity of each hydrant.*

Rationale: *The improvement in the Fire Department grading can occur through administrative measures and an increase in the firefighting force. Water supply can degenerate overtime due to development and an increase on the system. The improvement in the water supply will require planning and financial resources to address the fire flow delivery (annual testing) and the addition of fire hydrants within the county.*

Update – *Currently Haldimand County does annual testing, and all hydrants are colour-coded. And all new hydrants being installed by the industry are flow tested to ensure they properly supply required flows.*

The HCFD team have been working towards addressing the FUS recommendations. One key example is the attainment of the Superior Tanker Shuttle Accreditation, which demonstrates ability to create a consistent water supply at a fire scene.

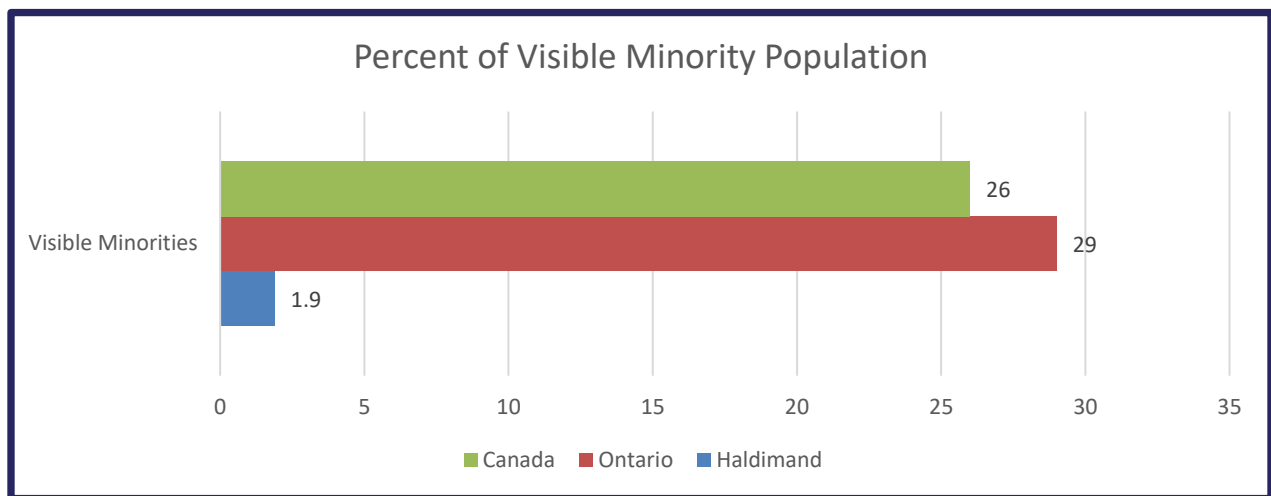
3.7 Diversity in the Community

A community is the sum of all its parts. Understanding these parts as they relate to fire safety and fire services is becoming an essential component for advancing fire department objectives. The required depth of community knowledge has evolved beyond just demographics to include many aspects such as (but not limited to): ethnicity, language, gender ratios, socioeconomic factors, and education. All this matters when it comes to planning for public education. Overcoming language barriers in delivering public education is essential, as is engaging with new Canadians about the fire safety concerns that may not have been relevant in their former country. Properly understanding the people that you serve can put a fire department in a stronger position to impact public education and fire safety.

These factors also matter in recruitment and retention. Career departments are working to become more reflective of the cities they serve and who and how they hire. Volunteer departments are beginning to understand their own communities as they seek to attract members. Volunteering in Canada is down in all aspects, and the demands placed on volunteer

firefighters is growing. Finding and keeping a strong membership is a real struggle for many municipalities. Better understanding who makes up the potential candidate pool will better help fire department leadership in leveraging once untapped resources in their community.

An example of framing this important data is that Haldimand County is well below both provincial and federal percentages related to visible minorities (as derived from Statistics Canada and referenced in the CRA).

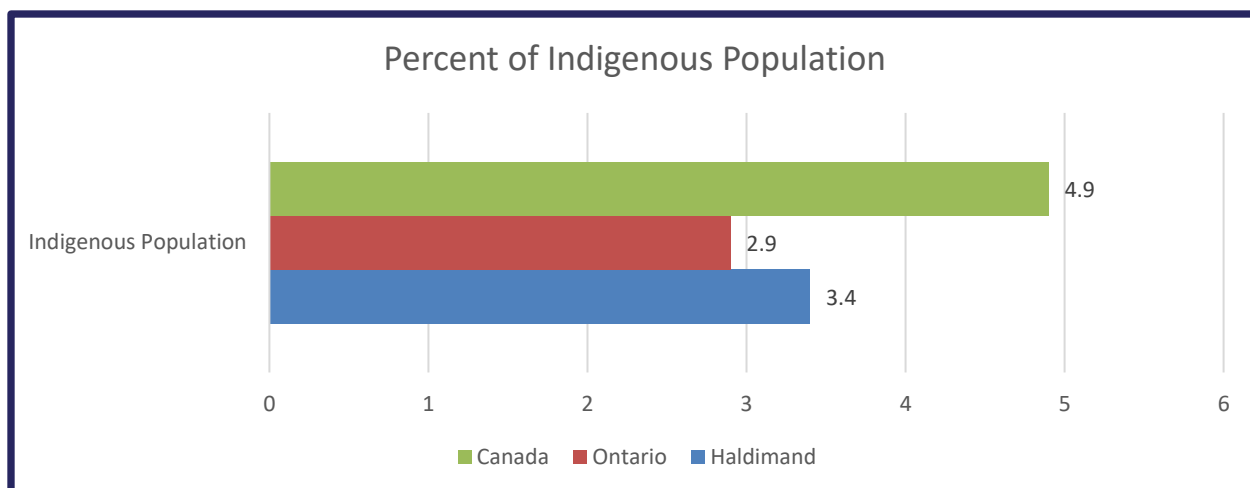


Of these numbers, 63% of this group are made up of those who reported as: *Black, South Asian, and Filipino*.

Understanding factors such as this and monitoring for growth or changes would be of great assistance to Haldimand County Fire Department as they work towards improving fire safety, and potential recruitment initiatives.

Indigenous Relations

Another important and growing diversity aspect is Indigenous relationships. Statistics Canada reports that Haldimand County is between the provincial and federal averages and may sit higher based on their location to Indigenous communities.



Haldimand County borders the Mississaugas of the Credit First Nation (MCFN), who they also provide fire protection services to. The HCFD through a Municipal-Type Service Agreement provides fire protection services for:

- *fire prevention and public education programs as requested*;*
- *fire suppression and life rescue from structural fires;*
- *response to and investigation of fire alarm activations;*
- *fire suppression of non-structural fires (vehicles, grass/brush etc.);*
- *motor vehicle accident life rescue (extrication);*
- *life rescue from incidents or accidents in addition to fire (ice/water rescue at shore-based level);*
- *medical assistance calls in accordance with the Haldimand County Fire Department tiered response policy as may be amended from time to time*
- *basic response for the suppression or containment of hazardous materials at the "awareness level"*
- *response to and investigation of carbon monoxide detector activations.*

Note: *As the Ontario Fire Code is not applicable legislation, the enforcement of the Ontario Fire Code through fire safety inspections is not included in this Agreement. For the purposes of this Agreement fire prevention shall be limited to public education and fire safety consultations.*

It can be expected that because HCFD, by virtue of their shared boundary with Six Nations and MCFN, will be engaging with community members, including vulnerable populations. This creates an opportunity for education in the spirit of reconciliation. It is important for members of HCFD to be aware of the cultural identity of members of these communities.

There are three major documents at the centre of understanding and highlight the importance of Indigenous history. These are the *Truth and Reconciliation Report* (1995), the *United Nations*

Declaration on the Rights of Indigenous Peoples (2007), and *the Missing and Murdered Indigenous Girls and Women Report* (2019).

The *Truth and Reconciliation Report* (2015) listed 94 calls to action. Of relevance to HCFD is subsection 57 which states:

"We call upon federal, provincial, territorial, and municipal governments to provide education to public servants on the history of Aboriginal peoples, including the history and legacy of residential schools, the United Nations Declaration on the Rights of Indigenous Peoples, Treaties and Aboriginal rights, Indigenous law, and Aboriginal-Crown relations. This will require skills-based training in intercultural competency, conflict resolution, human rights, and anti-racism."

In 2021 the federal government passed the *United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) Act*, enacting the document as federal law. The document contains 46 articles which address the UN afforded rights to Indigenous people across the globe. Some of the articles speak to non-Indigenous populations. Of interest to Haldimand County Fire is Article 15, specifically Part 2:

Article 15

1. Indigenous peoples have the right to the dignity and diversity of their cultures, traditions, histories, and aspirations which shall be appropriately reflected in educational and public information.
2. States shall take effective measures, in consultation and cooperations with the Indigenous peoples concerned, to combat prejudice and eliminate discrimination and to promote tolerance, understanding and good relations among Indigenous peoples and all other segments of society.

Also of relevance is the *Murdered and Missing Indigenous Girls and Women (MMIGW) Report*, that like the Truth and Reconciliation Report, put forth calls to action to all Canadians. This report contains 231 calls for justice and offers that *"each person has a role to play in order to combat violence against Indigenous women, girls, and 2SLGBTQQIA people"*. In section 15 the MMIGW Report details 8 specific calls addressed to 'all Canadians'. Similar to section 57 of the TRC report, it states:

Section 15.2

Decolonize by learning the true history of Canada and Indigenous history in your local area. Learn about and celebrate Indigenous Peoples' history, cultures, pride, and diversity, acknowledging the land you live on and its importance to local Indigenous communities, both historically and today.

While not part of the scope of the FMP, it is strongly suggested that Haldimand County fire leadership take the opportunity to find opportunities to properly educate its members in the cultural diversity of its Indigenous neighbours and partners.

Section #3 - Recommendations

Rec #		Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
3		That Haldimand County develops a comprehensive CRRP that falls in line with the CRA and the FMP recommendations.	Staff Time	Short-term (1-3 years) ongoing	With the risks to the County identified, the CRRP will aid in prioritizing the who, what, when and how these will be reduced or mitigated. Utilizing the CRA and FMP recommendations will guide the Fire Chief in creating this CRRP.	This is an NFPA recommendation, which is not legislated but is an industry best practice.

SECTION

4

Fire Department
Divisions –
Non-Suppression



SECTION 4: FIRE DEPARTMENT DIVISIONS – NON-SUPPRESSION

Within the scope of work noted in the original RFP document, staffing needs was identified as a priority in which EMG was to review the capabilities of existing staffing and identify future needs for each of the divisions including Suppression, Communications, Mechanical, Training, Prevention and Administration.

This section will discuss the following divisions:

- Administration
- Fire Prevention and Public Education
- Training & Education

4.1 Administration Division

A Fire Chief's role, in a large or small fire department, requires regular interaction of council, and senior corporate management. Responsibility for Fire Protection Services found in Part 2, section 2, paragraph 6 (3), of the *FPPA*, 1997, S.O. 1997, states that "A Fire Chief is the person who is ultimately responsible to the council of a municipality that appointed him or her for the delivery of fire protection services". It is based on this provincial legislation that the Fire Chief needs to communicate directly and regularly with the council of a municipality to satisfy the requirements of the role.

The Administration Division is comprised of senior and administrative staff. In Haldimand County this includes the Fire Chief, a Deputy Fire Chief, Fire Prevention Officers, Training Officer, and an Administrative staff. Although this team is doing an admirable job at managing the day-to-day operations of the department, with the upcoming training and certification requirements to meet NFPA standards for all positions within the Department, the demands on the Training Officer and Administrative staff will significantly increase. The additional workload will most likely require a review of the position and identify the following:

- What further resources may be required by the Training Officer to ensure HCFD can meet the OFM training and certification requirements, and
- Will there be a need to increase the administrative support.

Currently EMG is not recommending more full-time staff, only that with the impending training and certification legislation, the Fire Chief closely monitor the present staffs' ability to manage this increase in relation to training and administrative record keeping demands.

4.2 Fire Prevention and Public Education

4.2.1 Prevention & Education

Fire prevention and education duties are the responsibility of two Fire Prevention Officers and one casual Public Educator. The *FPPA*, 1997 requires all municipalities in Ontario to establish a program which must include Public Education with respect to Fire Safety.

Using social media, the HCFD raises awareness of fire prevention and education as well as community events where the fire department will be attending. The HCFD uses Twitter as one social media platform and other platforms such as Facebook and Tik Tok should be explored.

The *NFPA 1035 Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications* identifies fire and life safety education as a “comprehensive community fire and injury prevention program designed to eliminate or mitigate situations that endanger lives, health, property or the environment.”

As noted in the Ontario Fire Marshals Comprehensive Fire Safety Effectiveness Model, the first line of defence is public education and prevention, and when resources are specifically assigned to this activity, the community is better prepared and a reduction in fire incidents and property damage occurs. Public education and prevention are intended to increase awareness about fire prevention to reduce the loss of life and property directly and indirectly.

Fire prevention and education is the most effective means in reducing and preventing the incidences of fire and property damage. The goal of fire prevention is to improve the safety and quality of life for citizens by preventing fires and minimizing losses. In Canada most fire deaths occur in residential properties, while cooking and heating equipment are the major causes of home fires and smoking is the leading cause of fire deaths.

The FPO's are responsible for more than public education and prevention activities as they are also responsible for conducting fire inspections in occupancies such as hotels, churches, daycares, and long-term care facilities, respond to inquiries about the fire code and deal with daily inquiries and complaints about non-compliance.

Long range planning and goal setting must be a high priority for fire prevention and education programs delivery by the HCFD. Evidence based decision making is a result of an evaluation of the risks within the community and the impact of existing fire prevention and public education programs. Reviewing the causes of fires and identifying patterns or behaviours that need to be addressed to prevent these incidents from occurring in the future is the essence of any prevention and education program.

Failing to properly analyze the cause of fires and identify risks may cause resources to be assigned to the wrong target audience. Goals and objectives of prevention and education programs should be identified annually by the Fire Prevention Officers and Public Educator. The

objective of educational programs is to change behaviours of individuals to prevent injury, death, and property loss due to fire. If fire prevention and education programs can demonstrate they brought a change in behaviour, then it can be speculated that there will be a reduction in fires and a decrease in fire loss and injuries. A key factor in demonstrating that programs are successful is the collection of data such as call types, fire cause, property loss and property saved. Again, this data must be analyzed annually to benchmark progress and or gaps in the prevention and education programs.

In 2021 the HCFD visited approximately 3,625 homes within Haldimand County to discuss the importance of installing and maintaining working smoke and carbon monoxide alarms. A door knocker program was also implemented where information on smoke alarms, carbon monoxide alarms and Home Escape planning was left for the resident. This program creates relationships within the county and demonstrates that the HCFD is actively engaged in making the county safe.

Fire prevention programs for students should involve activities where students are able to make decisions based upon what they have been taught. This is one of the most effective ways to create safer generations and the fire service has recognized that it is better to work with teachers in the delivery of prevention activities as teachers know their students and how to effectively deliver the message. In 2021 the fire safety education programs were delivered to 31 classes which included 617 students and 36 staff taking part in the program.

Cooking, heating equipment and smoking have been identified as the leading cause for residential fires and fire deaths in Canada. In Ontario, adults 65-years of age and older are at a higher risk of dying in a fire than any other age group. The HCFD educated 17 older adults in 2021 about the leading cause of fires and how to prevent them from happening. The *Older and Wiser* programs were also provided to seniors at their general assembly meetings. As noted in the Fire Prevention Division's annual report, more still needs to be done in this area of fire safety education.

4.2.2 Fire Inspections

Fire inspections and enforcement, is, the number two line of defence as identified by the Province of Ontario's OFM. Fire prevention and education combined with inspection and enforcement are the most effective methods of reducing injuries and death associated with fires and associated emergencies.

Regular fire inspections are a key component in a community risk reduction plan as they identify deficiencies and contraventions of the National Fire Code or National Building Code before they cause a fire. Fire inspections ensure that fire detection equipment in buildings meet code standards and are operational.

As noted by the FUS, the frequency of inspections should be appropriate for the level of fire risk within the community and vary depending upon:

1. Type of occupancy

2. Occupant load
3. Function
4. Grade of Hazard

The FUS Inspection Frequency Chart can assist the HCFD to meet inspection benchmarks and develop a plan on what can be accomplished with its present staffing complement; however, it can be a challenge to meet the inspection schedule and a priority should be focused on the vulnerable occupancies such as Type A, B and C occupancies (e.g., nursing homes, retirement homes, group homes, etc.), institutional buildings, assemblies, multi-residential and industrial buildings.

Occupancy Type	Benchmark
Assembly (A)	3 to 6 months
Institutional (B)	12 months
Single Family Dwellings (C)	12 months
Multi-Family Dwellings (C)	6 months
Hotel/Motel (C)	6 months
Mobile Homes & Trailers (C)	6 months
Seasonal/Rec. Dwellings (C)	6 months
Commercial (F)	12 months
Industrial (F)	3 to 6 months

The Fire Prevention Division consists of two Fire Prevention Officers who are responsible for fire inspections, public education and being available for public inquiries. The HCFD has a five-Year fire inspection schedule which is a challenge for the FPOs to complete.

NFPA 1730, Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations identifies High, Moderate and Low risk occupancies as:

- **High-Risk Occupancy:** An occupancy that has a history of high frequency of fires, high potential for loss of life or economic loss or that has a low or moderate history of fires or loss of life, but the occupants have a high dependency on the built-in fire protection features or staff to assist in evacuation during a fire or other emergency. (e.g., schools, hospitals, nursing homes, refineries, explosive plants, and high-rise buildings).

- **Moderate-Risk Occupancy:** An occupancy that has a history of moderate frequency of fires or a moderate potential for loss of life or economic loss. (e.g., apartments, mercantile and industrial occupancies where rescue by firefighters is not normally required).
- **Low-Risk Occupancy:** An occupancy that has a history of low frequency of fires and minimal potential for loss of life.² (e.g., one, two, or three family dwellings, storage, mercantile and small businesses).

TABLE #1: NFPA 1730 SCHEDULE

Occupancy Risk Classification	Frequency
High	Annually
Moderate	Every 2 Years
Low	Every 3 Years
Critical Infrastructure	As per AHJ

NFPA 1730, Section 4.1.1 states:

The AHJ shall maintain a written statement or policy that establishes the following:

1. Existence of the FPO
2. Services that the FPO will provide
3. Basic organizational structure
4. Expected number of FPO members
5. Functions that FPO members are expected to perform.

Section 4.1.2 states:

The FPO shall have a leader and an organizational structure that facilitates efficient and effective management of its resources to carry out its mandate.

The existing HCFD five-year inspection schedule identifies high risk industrial buildings to be inspected every five years. Bulk plants for flammable liquids, chemical manufacturing and bulk

² NFPA 1730, *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations* 3.3.3.1-3.3.3.3

storage warehouses for hazardous substances would be classified as a high-risk occupancy and should be inspected annually.

The Fire Prevention Officers should analyze the profile data and information from the CRA and identify risks facing the community and prioritize fire inspection and public safety education schedules and programs based upon those risks. Fire prevention and inspection efforts for the year should be focused on the analysis of this data and low risk occupancies should be inspected every three-years rather than the current five-year schedule.

To assist fire departments in the determination of present and future staffing needs, NFPA 1730 outlines a process within Annex “C” of the standard. The five-step process involved a review of the following items:

1. Identifying the scope of desired services, duties, and desired outputs.
2. Review of the Fire Prevention Division’s overall time demands in its efforts to offer services.
3. Review of hours presently documented, coupled with the hours required to meet annual goals of the bureau.
4. The availability of branch personnel, factoring in vacation and other absences.
5. Estimating total number of personnel based on the previous four steps.

To assist with this process, the Fire Prevention Division should ensure close tracking of the actual time spent on each of the activities performed by the FPOs (ranging from inspections, complaints, licensing, safety plan reviews, and planning applications, to name a few). By identifying the time spent on each activity and collating this into baseline (approximate) times, the HCFD can conduct the five-step process to determine whether existing staffing levels meet the demand.

4.2.3 Fire Investigations

Fire cause and determination is conducted by the on-call Duty Officer. Structure fires are investigated where the origin and cause are relatively obvious and when a fire investigation is deemed to be complicated the Ontario Fire Marshal’s Office (OFM) is requested to assist with the investigation. Suspicious fires or those criminal in nature will require the OFM and Ontario Provincial Police (OPP) to assume responsibility for the fire investigation.

If the investigators are unable to decide due to excessive damage or uncertainty, the fire will be classified as undetermined for reporting purposes. Fatal, suspicious, excessive dollar value loss will involve the OFM for investigation purposes.

Some officers in the HCFD that have taken NFPA 1033 Standard for Professional Qualifications for Fire Investigator, but the Department is challenged to get the practical requirements for certification standards which poses some investigation challenges.

4.2.4 Preplanning

In *NFPA 1620 Standard for Pre-Incident Planning* (3.3.46) it identifies pre-incident planning as the document that is developed by gathering general and detailed data that is used by responding personnel in effectively managing emergencies for the protection of occupants, participants, responding personnel, property, and the environment.

A preplan ranges in complexity from a simple informal orientation to a building, to a more formal recording of information that can be used by firefighters during an emergency incident. The HCFD has an SOG for pre-incident planning and once a preplan is completed the information is recorded, a copy is retained at the fire station and the Fire Prevention Division will forward any significant information to the St. Catharine's Fire Dispatch to enter the CAD system. The Fire Prevention Division will also enter the pre-incident plan into the property address in Fire Pro.

Each fire station is required to complete two pre-plan facilities a year and the HCFD pre-plan program consists of:

1. **CAD Information**-This is the collecting of building information such as the location of utilities, unusual hazards, fire protection systems, construction features, fire apparatus access or staging locations, HVAC controls, hazardous materials, exposures and emergency contact information. This information is collected by the Fire Prevention Officers during fire safety inspections, supplied by the Building Department, collected by officers during an emergency response or gathered by fire stations during quick action plans and familiarization visits.
2. **Quick Action Plans**-This is the completion of the pre-incident survey form and collection of key information such as building features, hazards, apparatus staging issues, and other characteristics that can impact the strategy and tactics for fire suppression operations. This information is recorded in the CAD and available at the fire station and on responding apparatus.
3. **Building Familiarization Visits**-Station firefighters will conduct building familiarization visits for high-risk buildings such as hospitals, long-term care homes and commercial/industrial buildings. It is conducted by first scheduling an appointment to review the interior and exterior of the building and to get a tour from the building or business owner. It is a proactive means to get firefighters acquainted with building features, hazards, apparatus staging issues, and other characteristics that can impact the strategy and tactics that may be necessary to conduct life and safety and fire suppression operations in a safe manner.

Preplanning is a critical component and proactive strategy that positively impacts the emergency response by the HCFD and the public safety within the community. Firefighters not only get familiar with an occupancy; they are able to identify hazards, code infractions or

whether safety plans exist, or smoke alarms and sprinkler systems are operational. Any red flags or immediate life safety concerns can be forwarded to the FPOs to address.

4.3 Residential Fire Sprinklers and Monitored Fire Alarm Systems

Fire sprinklers have been around for more than a century, protecting commercial and industrial properties and public buildings. What many people do not realize is that the same life-saving technology is also available for homes, where roughly 85% of all civilian fire deaths occur.

The NFPA, along with the Ontario Association of Fire Chiefs, are strong supporters of residential sprinkler systems to reduce the risk to life and property from fire. In a recent NFPA on-line article, it was noted that because fire sprinklers react so quickly, they can dramatically reduce the heat, flames, and smoke produced in a fire. Properly installed and maintained fire sprinklers help save lives, reduce damage, and make it safer for firefighters.

Facts about home fire sprinklers

Unfortunately, due to the lack of Canadian statistics, we must rely on American statistics. However, since there are so many similarities in building construction, the statistics are an accurate reflection of the Canadian experience.

Automatic sprinklers are highly effective and reliable elements of total system designs for fire protection in buildings. According to an American Housing Survey, 10% of occupied homes (including multi-unit) had sprinklers in 2010-2014, up from 4.6% in 2009.

Source: U.S. Experience with Sprinklers³

- 85% of all U.S. fire deaths occur in the home.
- The civilian death rate of 1.4 per 1,000 reported fires was 81% lower in homes with sprinklers.
- The civilian injury rate of 25 per 1,000 reported fires was 31% lower in homes with sprinklers. Many of the injuries occurred in fires that were too small to activate the sprinkler or in the first moments of a fire before the sprinkler operated.
- The average firefighter injury rate of 13 per 1,000 reported home fires was 79% lower where sprinklers were present.
- Where sprinklers were present, flame damage was confined to the room of origin in 97% of the fires compared to 74% of fires without sprinklers.

³ NFPA report - U.S. Experience with Sprinklers, Accessed April 15, 2022, <https://www.nfpa.org/News-and-Research/Data-research-and-tools/Suppression/US-Experience-with-Sprinklers>

- In 2021 some fire safety statistics⁴ were released which includes:
- Fire sprinklers reduce the risk of death in a home fire by 80%.
- The risk of property loss is reduced by 70% in homes with sprinklers.
- A sprinkler installation typically costs 1-2% of a home's total construction cost. In Canada it has been found that due to the high costs of building materials due to the pandemic and pushback from some trades, the estimated costs vary from \$5 to \$10 / sq. ft.
- Fire sprinklers activate on an individual basis.
- Fire sprinklers release less water than fire hoses.

The Home Fire Sprinkler Coalition (HFSC) is a leading resource for accurate, non-commercial information and materials about home fire sprinklers for consumers, the fire service, builders, and other professionals.

By working with the developers and the public in promoting the installation of home sprinkler systems, the HCFD would be demonstrating a pro-active approach to educating the public on another viable option for homeowners to help reduce the risk in the event of a fire. As such, it is recommended that HCFD investigate this safety initiative as part of their fire prevention and public education initiatives.

Presenting a demonstration at community events would assist in driving the safety factor of having sprinklers in the home. A practical demonstration identifying the advantages of sprinklers will provide a very graphic visual image of their effectiveness.

Another key component to saving lives and property is early fire detection and monitoring. If the residents are not at home when a fire occurs, it may be some time before it is noticed and reported to the fire department. By that time, there could be significant fire involvement resulting in high property loss. The continuous monitoring of a fire alarm system by a 3rd party will ensure constant surveillance of alarm systems and the prompt notification of an alarm to the fire department.

4.4 Training Division

The HCFD is tasked with ensuring that its 274 volunteer firefighters are well trained. They operate 40 fire apparatus out of 11 fire stations and respond to motor vehicle accidents, structure and vehicle fires, wildland fires, hazardous materials and CO calls, public assistance, and medical emergencies.

⁴ The Latest Fire Safety Statistics - Stay Safe in 2021 (safeatlast.co), Accessed April 15, 2022, <https://safeatlast.co/blog/fire-safety/>

The Training Division is led by one Training Co-ordinator and 11 training officers. Each fire station has one training officer and these training officers are complemented with Ontario Fire College instructors. The Training Division provides consistent training and education to HCFD recruits up to the District Chiefs. Training sessions occur every Monday for two-hours with dates set for curriculum topics as well as make up sessions for those that missed a previous training session.

The training is delivered by in-house instructors with developed lesson plans and job performance requirements. All training is recorded in Fire Pro to ensure that each member's training and certification is logged and available if needed. The training provided by the HCFD meets NFPA standards and topics include but are not limited to:

- Fire Suppression and Emergency Operations
- Vehicle Extrication
- Water and Ice Rescue
- Firefighter Survival and Rescue (Rapid Intervention Teams)
- Incident Command
- Driver/Operator and Water Supply Operations
- Hazardous Materials, Confined Space & Technical Rescue (at the awareness level)
- DZ Driver Licensing/Driver Training
- Officer Development
- Recruit Training (7-month training program)
- Live Fire Training
- First Aid/CPR/AED Certification
- 2017 completed live fire training for all recruits and trained Haldimand County Training Officers as Live Fire Instructors.

The sheer number of firefighters within the HCFD requires a coordinated and consistent approach to training to ensure they meet legislated requirements. The Training Division strives to *provide NFPA 1001 Standard for Fire Fighter Professional Qualifications* Level I & II and *NFPA 1072, Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications* to department recruits. This training is scheduled for a two-year cycle with core topics being covered annually and non-core topics being covered bi-annually.

TABLE #2: 2-YEAR TRAINING SCHEDULE

Month	Year 1	Year 2
January	PPE	PPE
February	SCBA	SCBA
March	Fire Fighter Survival & Rescue Skills	Firefighter Survival & Rescue
April	Water Supply/Hydrant Operations	Ground Ladders/Ventilation
May	Tanker Operations	Ropes & Knots
June	Pump Operations/Portable Pumps	Salvage & Overhaul
July	Fire Suppression/Fire Streams	Building Construction
August	Hoses and Appliances	Forcible Entry
September	Hazmat Awareness Land-based Water & Ice Rescue	Technical Rescue Awareness Auto Ex
October	Incident Command Systems	Search & Rescue
November	Accountability/Entry Control	Communications
December	Fire Extinguishers	Size Up

Firefighters are expected to attend a minimum of 36 hours of training annually and maintain 50 percent attendance at Monday evening training sessions. Each station's training officer is to ensure that 48 hours of training is scheduled throughout the year. All the mandatory curriculum subjects are to be completed within the year along with maintaining valid CPR/AED/HCP and Standard First Aid certification. Firefighters that have not received their certification in NFPA 1001 will have the opportunity in 2023 to attend classes and complete their training to meet NFPA certification standards.

4.4.1 Swift Water and Ice Rescue

Certification is required every two years to maintain the Technician and Instructor Level status for NFPA 1006 Chapter 17. The HCFD has four (4) stations that are classified as boat stations and each station has three (3) Swift Water and Ice Rescue trainers and approximately 10 technicians at each station.

4.4.3 Live Fire

Live fire training is a part of NPFA 1001, and the HCFD sends all their recruits through the live fire training program and utilizes the Six Nations fire training facility. In 2022 the Acting Captains are the only members attending live fire training.

4.4.4 Officer Training

Currently the fire officers are grandfathered into their rank and in 2023 the Department is planning to offer *NPFA 1021 Standard for Fire Officer Professional Qualifications* (Fire Officer I) to 15 Captains. As part of this officer training, they will also require the prerequisite *NPFA 1041 Standard for Fire and Emergency Services Instructor Professional Qualifications*.

There are currently 15 Captains who will require NPFA 1021 Fire Officer I and they will also be required to complete the NPFA 1041 Fire Service Instructor Level I. The recent mandatory qualifications from the Fire Marshals Officer will require NPFA qualifications for firefighters by 2026 in the following areas:

- Officer-NPFA 1021 Level I and NPFA 1041 Level I
- Firefighter-NPFA 1001 and NPFA 1072 HazMat

4.4.5 Training Schedule

EMG reviewed the annual training schedule for the HCFD and found that it was very comprehensive and well thought out. Core subject matters are prioritized and other critical topics such as Aerial Operations, Aerial Awareness, Driver training, Water and Ice rescue, First Aid and CPR/AED training are scheduled annually, bi-annually or on a three-year cycle.

When a firefighter misses core subjects there is an opportunity each quarter to get caught up or the Training Officer can schedule extra training dates to accommodate firefighters that need to get caught up on specific training content.

4.4.6 Training Summary

The HCFD has a training program that provides a well-rounded program to recruits and experienced firefighters. The scheduled recruit and officer training for 2023 demonstrates foresight and will ensure that members are qualified, competent, and confident to perform their job.

4.5 Staff Development

The public and elected officials observe from a high level that services are being provided by the fire department but have little or no understanding of the preparation and training required for firefighters to be able to provide those services. Succession planning is more than just training, it is about preparing firefighters for the future and providing a foundation for members to possess the knowledge, skills, and abilities to be promoted and take on formal management and leadership roles in the fire department.

A succession plan provides a career path for a member to grow within the department, and this takes time and careful planning. Every firefighter has different goals and aspirations, and a career development program allows firefighters to take training in a topic that interests them. Some may want to prepare for a future management position, fire prevention officer or a training officer role. Whatever the desire, successful fire departments ensure that their firefighters have opportunities to learn and grow and attain formal training and certification to move forward in their careers. A succession plan requires the political and financial support to ensure that succession planning is successful.

Understanding what a succession plan is and successfully implementing one is not as easily done as written. There are two key categories for a succession plan.

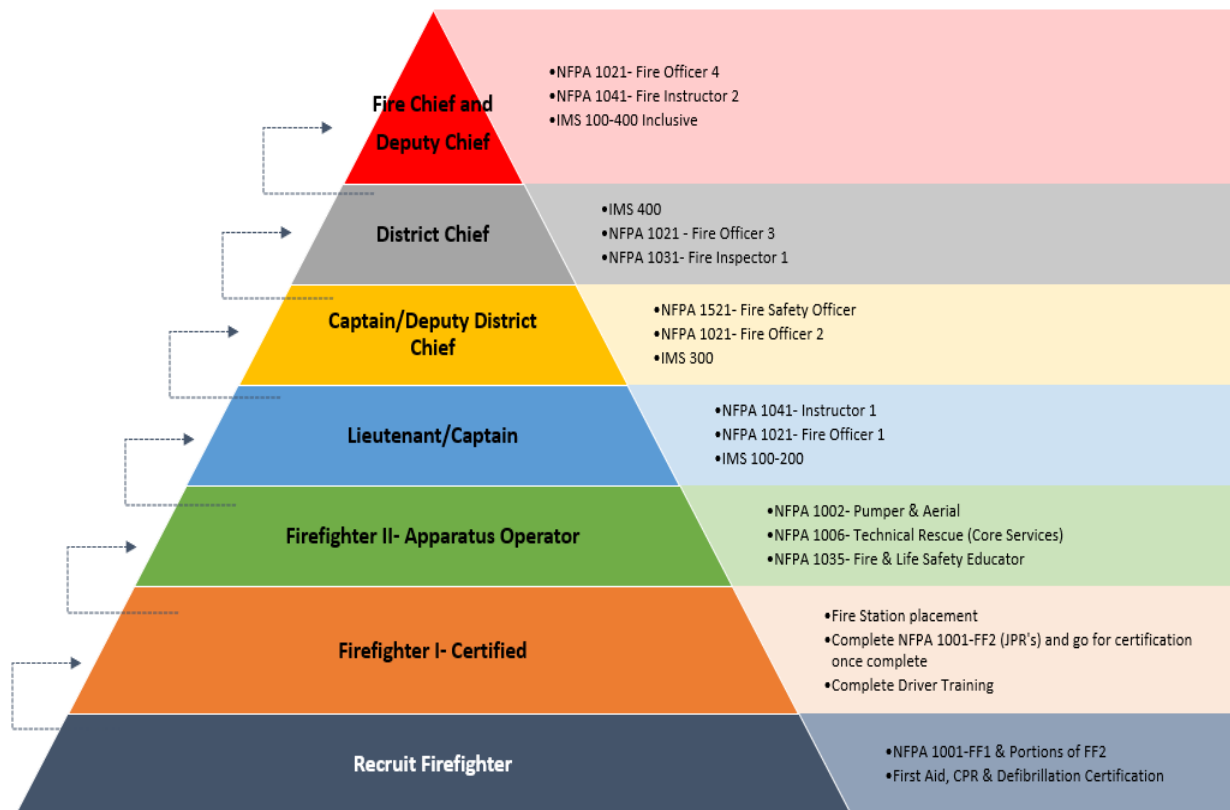
- **Standard Succession Plan:** Occurs when those in key positions leave for another job or without considerable advance notice. For example, if the Fire Chief or Deputy Chief left the department, an immediate void would be created. An existing member with the training, education and experience could be promoted to fill the vacant spot or at the very least, act in the capacity until a formal hiring process occurs.
- **Anticipatory Succession Plan:** The Fire Chief, Deputy Chief or other officer have provided a departure date for the department. A well thought out training program that focuses on the required competencies and skill sets for internal promotional opportunities is a good example of succession planning.

Today, most volunteer fire departments take great pride in ensuring that their members are trained and qualified. Elected officials generally do not understand the training required for today's firefighter, officer and chief officers and fail to recognize the importance of funding a strategically planned training program. Unfortunately, the training budget is the low hanging fruit to pick off during budget deliberations due to the belief that a training course can be delayed a year with no ramifications or impact to the Department's training schedule or plan. Delaying a scheduled training course or program can often set a department back years as many of the courses are interconnected or prerequisites for other training.

Having a well thought out and funded strategic training program is the best investment a fire department can make. The investment in the fire department's human capital increases retention, knowledge and creates the framework for not only succession planning but a high return on investment that is measured in leadership, teamwork, corporate knowledge, and safety.

For staff to obtain the necessary knowledge, skills, and experience it is recommended that a clear understanding of how the progression through the ranks should occur.

FIGURE #3: EXAMPLE OF TRAINING STANDARDS PER (RANK) POSITIONS



The following positions and suggested level of training should be adopted by the fire department to ensure that all fire personnel are being training and certified to the following levels.

4.3.1 Recruit Firefighters

When the new firefighters come out of the training academy, they are fully certified to both Firefighter Level I and II. And when assigned to a station/crew, they can only do what they are trained and signed off on by the Training Officer or Station Captain. This ensures that the new firefighters are not put in a position to carry out a task that they have not been assessed and approved to do.

4.3.2 Firefighter II to NFPA 1002 – Fire Apparatus Driver/Operator, Specialized Services Training & NFPA 1035 - Fire & Life Safety Educator

Emergency response personnel who drive and operate fire apparatus shall obtain the general knowledge, skills, and JPRs addressed for each level or position of qualification. It is industry's best practice for emergency response personnel who drive and operate fire apparatus to remain current with practices and applicable standards and shall demonstrate competency on

an annual basis. All firefighters who drive and operate HCFD apparatus need to complete certification of the NFPA 1002 – Fire Apparatus Driver/Operator Standard.

Additional core services provided by firefighters include specialized services such as water and ice rescues, hazardous materials responses, as well as some technical rescues that may be supplied by other departments through fire service agreements.

The services that are supplied by HCFD are ones that the firefighters are properly trained and equipped to mitigate. It is imperative that the training programs properly prepare firefighters to safely respond to the level of service identified by the AHJ. The firefighting program should also incorporate the NFPA 1072 – Hazardous Materials/ Weapons of Mass Destruction Emergency Response Professional Qualifications (Chapter 4) & NFPA 1006 – Technical Rescue Qualifications. Firefighters shall demonstrate competency of these skills determined by the AHJ on an annual basis.

Educating the public about fire safety is a responsibility of staff and it is important that firefighters receive a general understanding of how to deliver educational programs to the residents by using the NFPA 1035 - Fire and Life Safety Educator Standard. The recommended training program shall provide a theory component to firefighters so they can demonstrate the ability to coordinate and deliver existing educational programs and information.

4.3.3 Captain

The position of Captain for the fire department is one that represents the first level as a supervisory position within the organization. With this position comes great responsibility, tactical leadership, and proven ability to meet and exceed expectations. A superior level of knowledge and experience in fireground operations, delivery of training programs and ability to supervise a platoon of firefighters is all encompassing. There may be times where a captain may need to assume command of an incident in the absence of a senior officer.

HCFD has historically used different third-party agencies for certification in training and EMG suggests that this practice continue as it provides more options in terms of costs and program delivery. For qualification at NFPA 1021 - Fire Officer Level I, the candidate shall meet the requirements of Fire Fighter II as defined in NFPA 1001, Fire Instructor I as defined in NFPA 1041, and complete the job performance requirements of the NFPA 1021 standard.

As a pre-requisite for certification to NFPA 1021 – Fire Officer Level I require the completion of the NFPA 1041 – Fire Instructor Level I. A fire and emergency services instructor who has demonstrated the knowledge and ability to deliver instruction effectively from a prepared lesson plan, including instructional aids and evaluation instruments; adapt lesson plans to the unique requirements of the students and AHJ; organize the learning environment so that learning, and safety are maximized; and meet the record-keeping requirements of the AHJ.

Suggested Training Opportunity for Consideration:

For the position of Captain, emergency management training should start with IMS-100 Introduction to the Incident Management System (IMS) for Ontario and IMS-200 Basic Incident Management System for Ontario (refer to Section 8 Emergency Management for additional comment regarding Emergency Management training).

4.3.4 District Chief

The position of District Chief for HCFD is one that represents the third level as a supervisory position within the organization. With this position comes the greatest responsibility at the district chief level. Working with the Fire Chief and/or the deputy chief with strategic leadership in mind he/she provides oversight, status updates, repair needs and recommendations to improve operations, training, apparatus and equipment and station needs. While this position historically has not been overly involved in fire department decision making, EMG believes that there is great opportunity with the establishment of a Fire Leadership Team.

Suggested Training Opportunity for Consideration:

The position of District Chief, emergency management training, continue with IMS 250 – IMS in EOCs and that all District Chiefs acquire NFPA 1031 – Fire Inspector I certification.

4.3.5 Deputy Fire Chief

The position of deputy Fire Chief is one that would represent the fourth level as a supervisory position within the organization with having oversight of two divisions and representation on the fire leadership team. This strategic leadership role would focus on department training development and delivery, district operational support while reviewing department data analysis, and operational guideline development and maintenance.

NFPA 1021 – Fire Officer III is focussed on Human Resources Management, Community and Government Relations, Administration, Inspection and Investigation, Emergency Services Delivery, Health and Safety and Emergency Management. EMG believes this level of education is a perfect fit for this level within the organization.

EMG recommends that HCFD adopt the educational progression plan outlined. The proposed training programs and succession path should be supported for current and proposed positions with the following suggested training:

- The position of captain, emergency management training should start with IMS-100 Introduction to the Incident Management System (IMS) for Ontario and IMS-200 Basic Incident Management System for Ontario.
- District Chief position acquire NFPA 1521 – Fire Department Safety Officer certification.
- The position of District Chief, emergency management training continues with IMS 250 – IMS in EOCs.

- The position of District Chief, emergency management training further continues with IMS 300 – Intermediate Incident Management System.

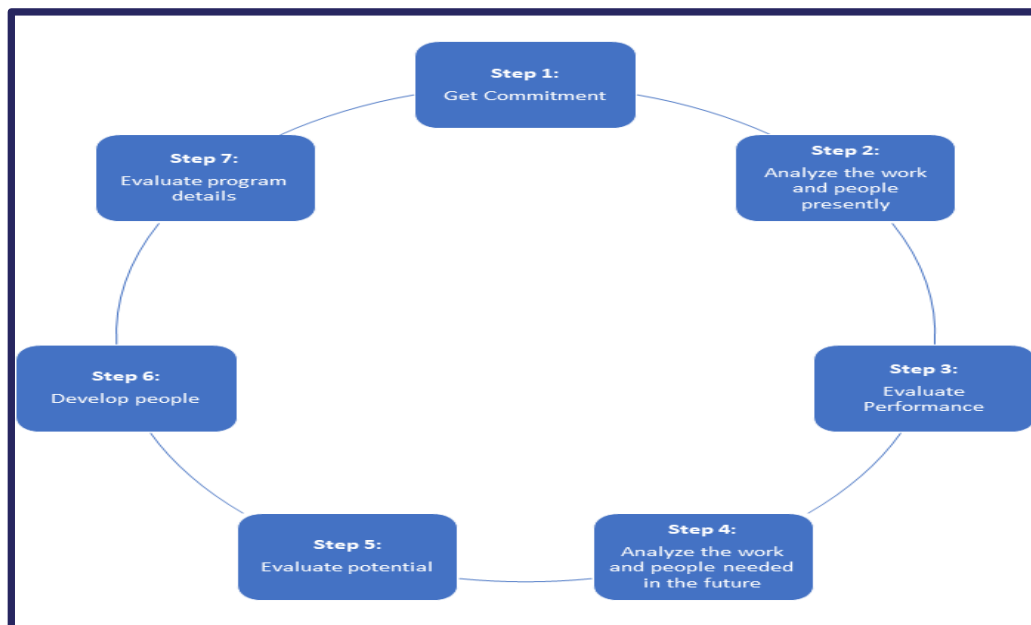
4.6 Succession Planning

Succession planning is the process of identifying key roles in a fire department and determining the level of readiness that potential members possess to fill these roles. Rarely will a fire department prepare a single individual for a particular role, but instead will prepare several in the spirit of building a talent rich pool in the fire department and promoting the best candidate for the department.

Succession planning creates employee involvement as training, mentoring, education, and coaching are utilized to prepare the employee. A succession plan takes time and resources and creates the foundation for members to possess the knowledge, skills, and abilities to be promoted and take on formal management and leadership roles in the fire department.

A key component of succession planning is recognizing and providing the necessary education, training, mentoring, and coaching to those that do want to be promoted to a higher-ranking chief officer position. Currently, HCFD does not have a succession plan in place. As such, EMG recommends that succession planning become a priority for the fire department.

FIGURE #4: EFFECTIVE SUCCESSION PLANNING STEPS⁵



⁵ Effective Succession Planning (fourth edition) Author: William J. Rothwell
<https://hcmindonesia.files.wordpress.com/2012/12/9b-successionplanhandbook.pdf>, Page 83-85

The following steps outline Rothwell's roadmap to successful succession planning.

Step 1: Get Commitment

Fire management and the Human Resources (HR) staff must agree upon why succession planning is necessary for the fire department and how to implement training components to prepare personnel for future chief officer promotional opportunities in the department. A commitment must be made by the department in terms of budget allocation and a commitment must be made by individuals that they are willing to put in the time and energy into their education and training.

Step 2: Analyze the Work And People

Ensuring that job descriptions identify the required competencies and qualifications for chief officer positions.

Step 3: Evaluate Performance

The ongoing evaluation of the individuals, what the results are that they are expected to achieve, and the competencies and behaviours they are expected to demonstrate.

Step 4: Analyze the Work And People Needed In The Future

Fire department management staff must anticipate the future qualifications and needs of the department based upon its strategic objectives and the competencies required to meet those objectives. This will require regularly scheduled reviews of the qualifications and competencies required for the chief officer positions.

Step 5: Evaluate Potential

The assumption cannot be made that successful performance in the past guarantees successful performance in the future. The department must look at objective ways to evaluate individuals to determine how well they will function at a higher level of responsibility.

Step 6: Develop People

This step is carried out by a formal career development plan that identifies what individuals must do in terms of education and training to increase their chances of success for promotion in the future.

Step 7: Evaluate Program Results

The success of the program is indicated by the support and positive results in terms of budgetary program support, participation, and successful promotions.

A well thought out and implemented succession planning process takes time and resources to develop, but the result is the development of a fire department's talent pool with members actively participating in their own career development. A formal organization development program can be created that identifies technical competencies and core (corporate) competencies and qualifications for Fire Chief, Deputy Fire Chief, District Chief, Captain, and Firefighter and be formally implemented.

As noted in the following excerpts, three international organizations are in full support of succession planning and career development. This is for both volunteer and career personnel.

- The International Fire Service Training Association (IFSTA) stated, *"Successful chief officers depend upon their experience and their experiences to guide them. Their experience can be defined as the positions they have held while their experiences are the things they have done and the situations to which they have been exposed. Experience and exposure are not the same thing. Seniority does not necessarily equate to experience."*⁶
- The International City/County Management Association (ICMA) notes that the work experience is often conflated with tenure or "time on the job." While seniority generally offers more opportunities for exposure to different challenges, perhaps a better focus is on the experiences accumulated by a firefighter during his or her tenure in the department.⁷
- The IAFC recognizes that the fire services training budget is generally focused on front line-level personnel and far less effort is focused on the development of potential officers. As such, officers rarely get the development they need.⁸ The IAFC identifies what works well in getting the right experience to individuals that have the ability to learn from experience and identified a new way to look at officer development. Below is the model identified by the IAFC on what works best for the development of employees according to organizational development data.

The dynamics of today's fire service require a high level of education and experience to meet the demands placed upon the position. You cannot implement a career development program without considering education and experience as both go hand in hand.

Based upon the review of the training program and absence of a formal document for successful completion of the fire officer qualifications, it appears that the technical skills have been a focus for the department and unfortunately a gap was created in developing a formal career development plan. This regularly occurs in the fire service as the focus tends to be on

⁶ IFSTA (2014) Chief Officer, Third Edition, p. 29

⁷ ICMA (2012) Managing Fire and Emergency Services, p. 266

⁸ International Association of Fire Chiefs (2010) Officer Development Handbook

prioritizing technical training due to budget limits which results in officer training and career development gaps.

4.4.1 Chief Officer Education

Career, combination, and volunteer departments in Canada are regularly using NFPA 1021 as the standard benchmark for their officers. This has been the general trend for career fire departments for years, but today more volunteer fire departments across Canada are also using NFPA 1021 as their benchmark for officer positions.

The *NFPA 1021 Standard for Fire Officer Professional Qualifications* identifies the distinction of each fire officer as the following:

3.3.4 Fire Officer I-The Fire Officer, at the supervisory level, who has met the job performance requirements specified in this standard for Level I.

3.3.5 Fire Officer II-The Fire Officer, at the supervisory/managerial level, who has met the job performance requirements specified in this standard as Level II.

3.3.6 Fire Officer III-The Fire Officer, at the managerial/administrative level, who has met the job performance requirements specified in this standard for Level III.

3.3.7-Fire Officer IV-The Fire Officer, at the administrative level, who has met the job performance requirements specified in this standard for Level IV.

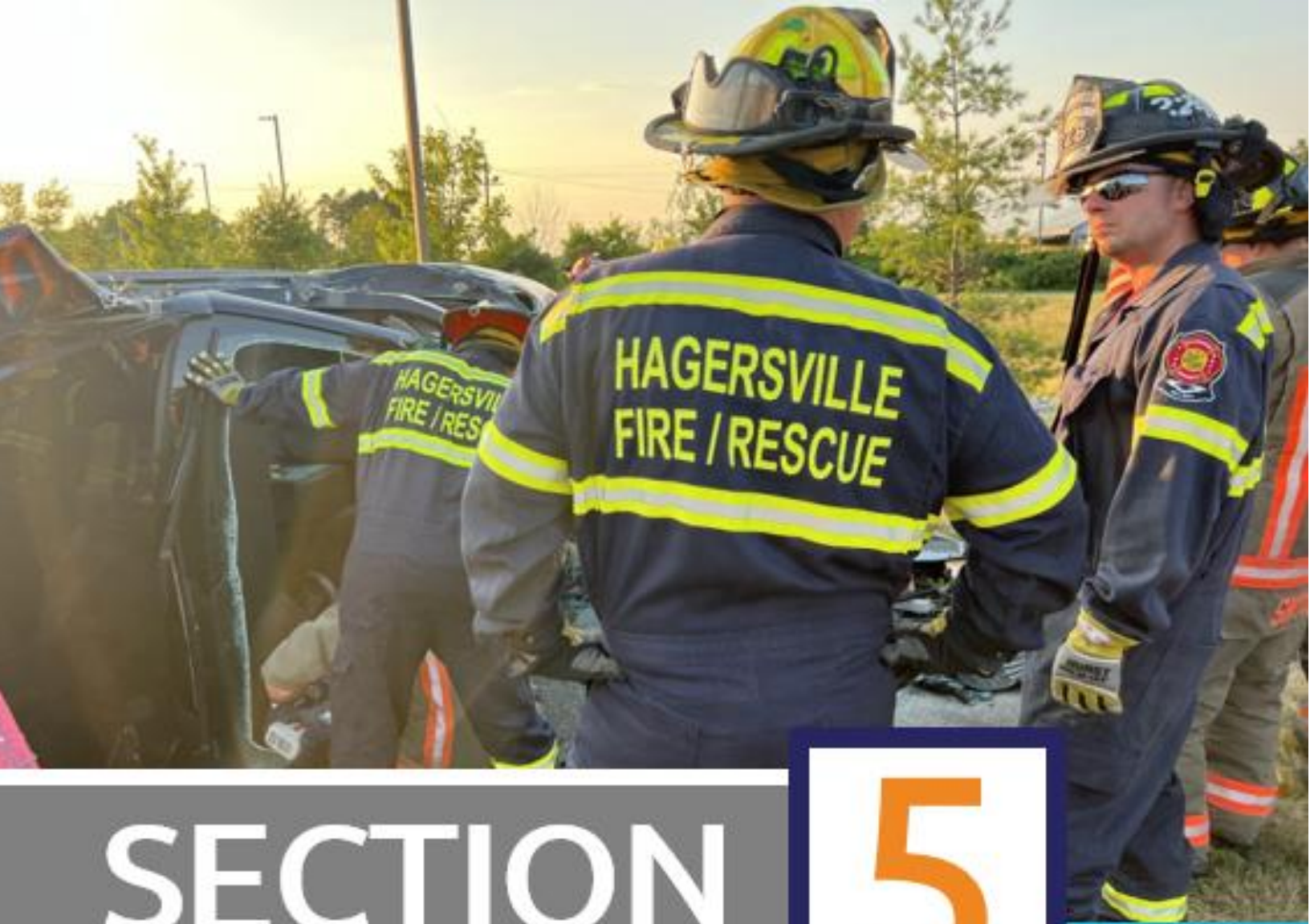
Developing job descriptions with a list of the expected minimum technical job competencies and responsibilities, as well as the core corporate competencies and responsibilities, along with continuous professional learning for each of those positions should be outlined to chart the path for succession.

Section #4 - Recommendations

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
4	The HCFD should increase the prevention and education programs for seniors within the County.	Staff time	Short-term (1-3 years) and ongoing	Adults 65 years of age and older are at a higher risk of dying in a fire than any other age group. Increasing the prevention and education strategies for this demographic will have a positive impact by preventing fire, life, and property loss.	The fire department is doing this on a request basis, but more emphasis in this area is recommended.
5	The HCFD should review their high-risk occupancies in the existing five-year inspection schedule and create an annual inspection schedule that prioritizes Type A, B, and C occupancies along with the High-Risk Classifications as per NFPA 1730.	Staff time	Short-term (1-3 years) and ongoing	High risk occupancies are considered to have a higher probability of fire or other emergency due to the materials stored, manufactured or used on site and because of this risk, there is a higher-than-average risk for injury or death to occupants or employees. Ensuring that high risk occupancies are inspected annually will be a key factor in a community risk reduction plan.	Although HCFD does meet the requirements for mandatory inspections of specific facilities, they do not meet their five-year plan or the NFPA Standard. NFPA is not mandatory; it is viewed as an industry best practice, and HCFD should consider adopting it.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
6	The HCFD conduct an assessment as per Annex "C" of NFPA 1730 to determine whether the existing staff can meet the demands of the 5-year inspection schedule and other required duties.	Staff time	Short-term (1-3 years) and ongoing	The existing FPO's are not able to meet the inspections as identified in the five-year schedule, and working through the five-step process can help identify what duties are more demanding and time-consuming on the FPO's. Through this process, the Division will be able to determine if more staff are required and/or how best to allocate existing staff complement	The NFPA is not mandatory. However, the bureau can determine if more staff are required and/or how best to allocate existing staff complement.
7	That each fire station completes a minimum of three pre-plans annually.	Staff Time	Short-term (1-3 years) and ongoing	Preplanning is a proactive measure that has a high benefit-cost ratio (BCR). The benefit of completed preplans are very high with little associated costs other than the time required to complete the preplan.	HCFD presently does accomplish two preplans per year per station. This increase to three is viewed as a means of firefighters gaining greater familiarity with their response zones and the possible risks within them.
8	HCFD to work in conjunction with residential developers to promote the advantages of installing residential fire sprinklers.	Staff Time	Immediate (0-1 year)	Continued support of this life-saving initiative will help confirm home sprinkler systems' benefits. This can be done (in part) through the development of a pre-consultation process run through the County's Planning Division.	There is no legislation requiring sprinkler systems in homes. However, the Fire Chief's Associations are promoting the inclusion of these life safety systems.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
9	HCFD adopts an educational progression plan. The proposed training programs and succession path should be supported for current and proposed positions with the following suggested training: For the position of captain, emergency management training should start with IMS-100 Introduction to the Incident Management System (IMS) for Ontario and IMS-200 Basic Incident Management System for Ontario. The position of district chief, emergency management training continues with IMS 250 – IMS in EOCs.	Staff time	Short-term (1-3 years) and ongoing	Education and succession planning is critical to the success of any organization.	The HCFD has a solid training program that will benefit from the implementation of a more formal progression plan.
10	Create a formal organization development program that identifies technical and core competencies for Fire Chief, Deputy Fire Chief, District Chief, Captain, and Firefighter and be formally implemented.	Staff time	Short-term (1-3 years)	Understanding the core competencies of each position will set the foundation for training related needs. As noted, the HCFD has a solid training program that will benefit from the development of core competencies.	As noted, the HCFD has a solid training program that will benefit from the development of core competencies.



SECTION

5

Fire Suppression,
Communications and
Health & Safety

SECTION 5: FIRE SUPPRESSION, COMMUNICATIONS AND HEALTH & SAFETY

5.1 Fire Suppression/Emergency Response

HCFD is a composite fire department in that it has both career and volunteer firefighters. The career contingent consists of the Fire Chief, Deputy Fire Chief, Fire Prevention Officers, and a Training Officer. The fire suppression division consists of volunteer firefighters dispersed amongst the 11 fire stations. For HCFD, the NFPA standard that relates to the department is 1720 - *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*. This NFPA standard notes the following operational goals:

- **Staffing and Deployment.**
 - 4.3.1 The fire department shall identify minimum staffing requirements to ensure that the number of members that are available to operate are able to meet the needs of the department.
 - 4.3.2* Table 4.3.2 (noted here on page 76) shall be used by the AHJ to determine staffing and response time objectives for structural firefighting, based on a low-hazard occupancy such as a 2000 ft² (186 m²), two-story, single-family home without basement and exposures and the percentage accomplishment of those objectives for reporting purposes as required in 4.4.2.
- **4.6 Initial Firefighting Operations.**
 - 4.6.1 Initial firefighting operations shall be organized to ensure that at least four members are assembled before interior fire suppression operations are initiated in a hazardous area.
 - 4.6.2 In the hazardous area, a minimum of two members shall work as a team.
 - 4.6.3* Outside the hazardous area, a minimum of two members shall be present for assistance or rescue of the team operating in the hazardous area.

NFPA 1720 section 4.10.3 identifies other types of companies that are utilizing specialized equipment and apparatus, to assist Engine and Ladder companies as per the fire departments SOGs. "*Special operations shall be organized to ensure that the fire department's special operations capability includes the personnel, equipment, and resources to deploy the initial arriving company and additional alarm assignments providing such services.*"

The overall goal of any fire department is to arrive at the scene of the incident as quickly and as effectively as possible. If a fire truck arrives on scene in four minutes or less with a recommended crew of four or more firefighters, there is increased opportunity to contain the fire by reducing further

spread to the rest of the structure. Alternatively, if the first fire attack team arrives with fewer than four firefighters on board, it is limited to what operations it can successfully attempt.

Based on studies and evaluations conducted by the National Institute of Standards and Technology (NIST) and the NFPA, no interior attack is to be made by the firefighters until sufficient personnel arrive on scene. The expectation is that a minimum of three firefighters and one officer arrive on scene to make up the initial fire suppression team. This team of four can effectively do an assessment of the scene, secure a water source (e.g., fire hydrant), ensure the fire truck is ready to receive the water and get the fire pump in gear, as well as unload and advance the fire hose in preparation for entry into the structure.

In 2010 and 2020, the NIST in the United States conducted a study on fire crew efficiencies and the tasks that may be completed during a residential structure fire with different sized crews.

The following research questions guided the experimental design of the low-hazard residential fireground experiments documented in this report:

1. How does crew size and stagger affect overall start-to-completion response timing?
2. How does crew size and stagger affect the timings of task initiation, task duration and task completion for each of the 22 critical fireground tasks?
3. How does crew size affect elapsed times to achieve three critical events that are known to change fire behavior or tenability within the structure?
 - Entry into structure?
 - Water on fire?
 - Ventilation through windows (three upstairs and one back downstairs window and the burn room window).
4. How does the elapsed time to achieve the national standard of assembling 16 firefighters at the scene vary between crew sizes?

The experiments were conducted in a burn prop designed to simulate a low-hazard fire in a residential structure described as typical in NFPA 1710. A low-hazard occupancy is defined in the NFPA Standard as a one, two or three-family dwelling and some small businesses. Medium hazard occupancies include apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or firefighting forces. High-hazard occupancies include schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings and other high life hazard or large fire potential occupancies.

The study found that four-person crews were able to complete 22 essential firefighting and rescue tasks in a typical residential structure fire 30% faster than a two-person crew and 25% faster than a

three-person crew.⁹ Having crews of four firefighters lessens the risk of injury as more personnel are available to complete assignments.

5.1.1 National Fire Protection Association (1720)

Chapter 4 of the NFPA 1720 Standard identifies the number of response personnel for the deployment of volunteer firefighters:

- Section 4.3.1: *"the Fire Department shall identify minimum staffing requirements to ensure that a sufficient number of members are available to operate safely and effectively."*
 - *In Urban areas (population greater than 386 people per square kilometer/1,000 per square mile), there should be a minimum response of **15 staff within 9 minutes**, 90 percent of the time.*
 - *In Suburban areas (population of 103 - 386 people per square kilometer/500 – 1,000 per square mile), there should be a minimum response of **10 staff within 10 minutes**, 80 percent of the time.*
 - *In Rural areas (population of less than 103 people per square kilometer/500 per square mile), there should be a minimum response of **6 staff within 14 minutes**, 80 percent of the time."*

With a current permanent population of approximately 49,000 within approximately 1,252 square kilometres, HCFD's communities fall into the rural standard with approximately 37 residents per square kilometre. This would require 6 firefighters on scene within 14 minutes, 80% of the time. However, the more populated portions of the County do fall into the "Suburban" classification, which suggests that the response should be 10 firefighters on the scene within 10 minutes 80% of the time. Currently, the HCFD does not meet the "10 in 10" NFPA recommendation on a regular basis for several reasons, which are discussed later in this section, but does, for the most part, meet the "6 in 14" recommendations.

Note: *To accomplish the National Fire Protection Association Standard, a fire department should endeavour to meet the stated minimum response standards based on responding to a 2,000-sq. ft. single family dwelling. The dwelling (noted in the Standard) does not have a basement or other exposures (buildings close enough to each other to create a greater possibility for fire spread). Most homes have basements, however, and these homes are often built close enough to each other to*

⁹ "Report on Residential Fireground Field Experiments," Averill, Jason D. et al, April 2010, https://tsapps.nist.gov/publication/get_pdf.cfm?pub_id=904607

create that “exposure” for potential fire spread, which must be considered by the fire department in its response efforts.

5.1.2 Fire Response Curve:

When considering the response times and needs of a community, the fire response curve (Figure #5) presents the reader with a general understanding of how fire can grow within a furnished residential structure over a short period of time. Depending on many factors, the rate of growth can be affected in several different ways, which can increase or suppress the burn rate through fire control measures within the structure. As an example, some older legacy homes, fire spread, and flashover may progress slower than newer homes due to the type of construction and contents. Some older homes may not witness flashover for up to 25 minutes. Whereas newer homes could incur flashover in as little as four minutes within the room or origin.

Note: *Flashover is a situation in which the entire contents of a room ignite due to the extreme high heat conditions. This situation is not survivable by unprotected occupants that may be caught in this type of situation. Even firefighters are at great risk of severe injury and/or death due to the extreme fire and heat conditions within the area of the flashover.*

The response time of a fire department is a function of various factors including, but not limited to:

- The distance between the fire stations and response location
- The layout of the community
- Impediments such as weather, construction, traffic jams, lack of direct routes (rural roads)
- Notification time
- Assembly time of the firefighters, both at the fire station and at the scene of the incident.
 - Assembly time includes dispatch time, turnout time to the fire station and response to the scene. It should be noted that assembly time can vary greatly due to weather and road conditions along with the time of day.

As illustrated in the following fire propagation diagram the need for immediate initiation of fire suppression activities is critical. HCFD responds to more than just fires; motor vehicle collisions can create a medical or fire emergency that also needs immediate response. Thus, it is imperative to be as efficient and effective as possible in responding to calls for assistance.

FIGURE #5: FIRE RESPONSE/PROPAGATION CURVE

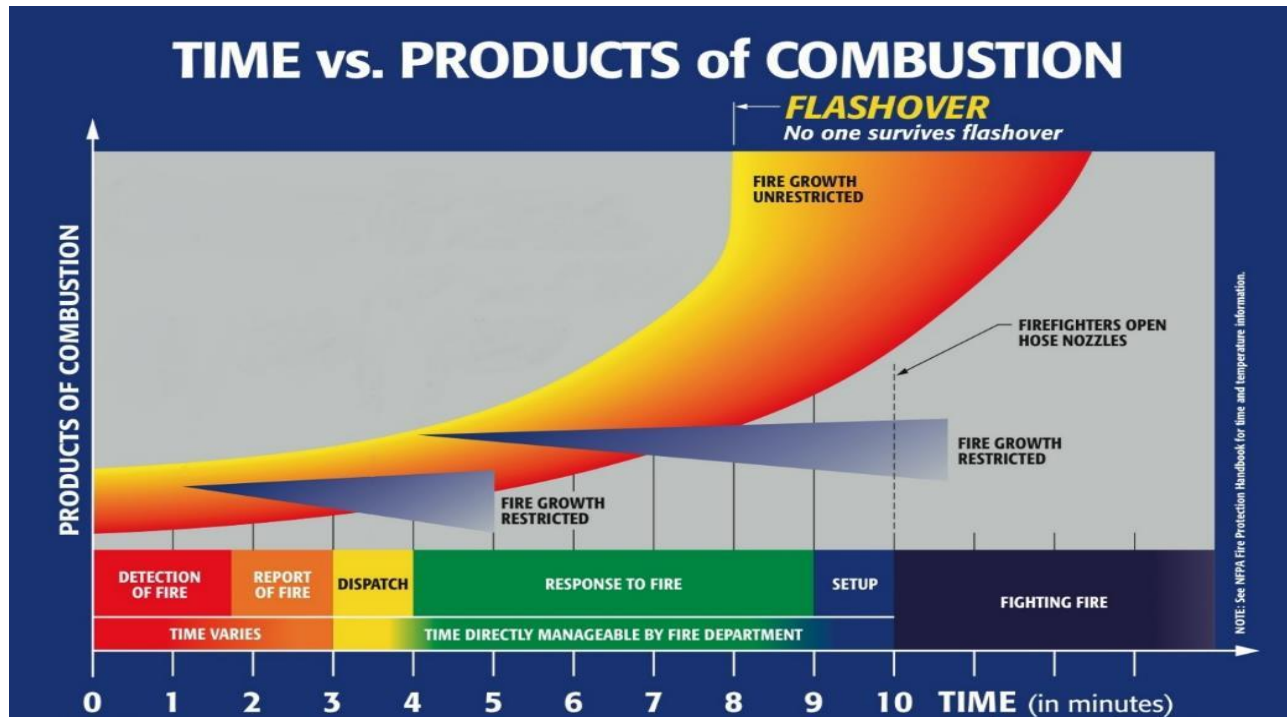


FIGURE #5 notes the following time variables:

- **Detection of fire** – this is when the occupant discovers that there is a fire. For the purposes of this chart, detection time is noted as being within one to one and half minutes – this could in fact be shorter or longer. The fire may be in a very early stage or could have been burning for quite some time before being detected.
- **Report of fire** – this is when someone has identified the fire and is calling HCFD for help.
- **Dispatch** – the time it takes the dispatcher to receive the information and dispatch the appropriate resources.
- **Response to the fire** – response time is a combination of the following:
 - **Turnout time** – how long it takes the career firefighters to get to the fire truck and respond or how long it takes the volunteer firefighters to get to the fire station to respond on the fire truck.
 - **Drive time** – the time from when the crew advises dispatch that they are responding until the time that they report on scene.
- **Setup time** – the time it takes for the fire crews to get ready to fight the fire.
- **Fighting the fire** – actual time it takes to extinguish the fire on scene.

The overall goal of any fire department is to arrive at the scene of the incident as quickly and as effectively as possible. If a fire truck arrives on scene in ten minutes or less, there is increased opportunity to contain the fire by reducing further spread to the rest of the structure.

In relation to on scene staffing, based on studies and evaluations conducted by the National Institute of Standards and Technology (NIST) and the NFPA, no interior attack is to be made by the firefighters until sufficient personnel arrive on scene. The expectation is that a minimum of three firefighters and one officer arrive on scene to make up the initial fire suppression team. This team of four can effectively do an assessment of the scene, secure a water source (e.g., fire hydrant), ensure the fire truck is ready to receive the water and get the fire pump in gear, as well as unload and advance the fire hose in preparation for entry into the structure. A team of four also allows for adherence to the recommended “two-in, two-out” rule, referring to the presence of two firefighters inside the structure with two outside ready to go in as back-up.

The Fire Chief does ensure that each station has a complement that allows for an initial full crew response to incidents. To accomplish this, a response protocol is in effect that ensures whenever a station and its firefighters are dispatched to any type of call where back-up may be required, another station is automatically dispatched to the same incident.

5.1.3 Response Data

Based on a review of the response data supplied, along with discussions with the Fire Chief, HCFD is achieving a varying level of success in meeting the NFPA response criteria. By utilizing this information in conjunction with the supplied response maps created by EMG, we can see the effect of road networks, traffic levels, and traffic control systems on response times by emergency responders. As such, HCFD response times should be monitored based on the OFM definition, which is from “dispatch time, to time of arrival at the incident”; in other words, from the time the call is received, to when the fire station or pager tones activate, to when the firefighters get on the fire trucks and arrive at the emergency scene location.

Performance measurements that the fire department should monitor include:

- **Response time:** the total time from receipt of call to the time the fire vehicle arrives at the incident location.
- **Firefighter turnout time:** time from page until the first vehicle is responding.
- **Drive time:** time tracked from when the fire vehicle has left the station until arrival at the incident location.

HCFD response times should be monitored based on the NFPA 1720 standards of an overall response of 6 firefighters on scene within 14 minutes 80% of the time, from being dispatched.

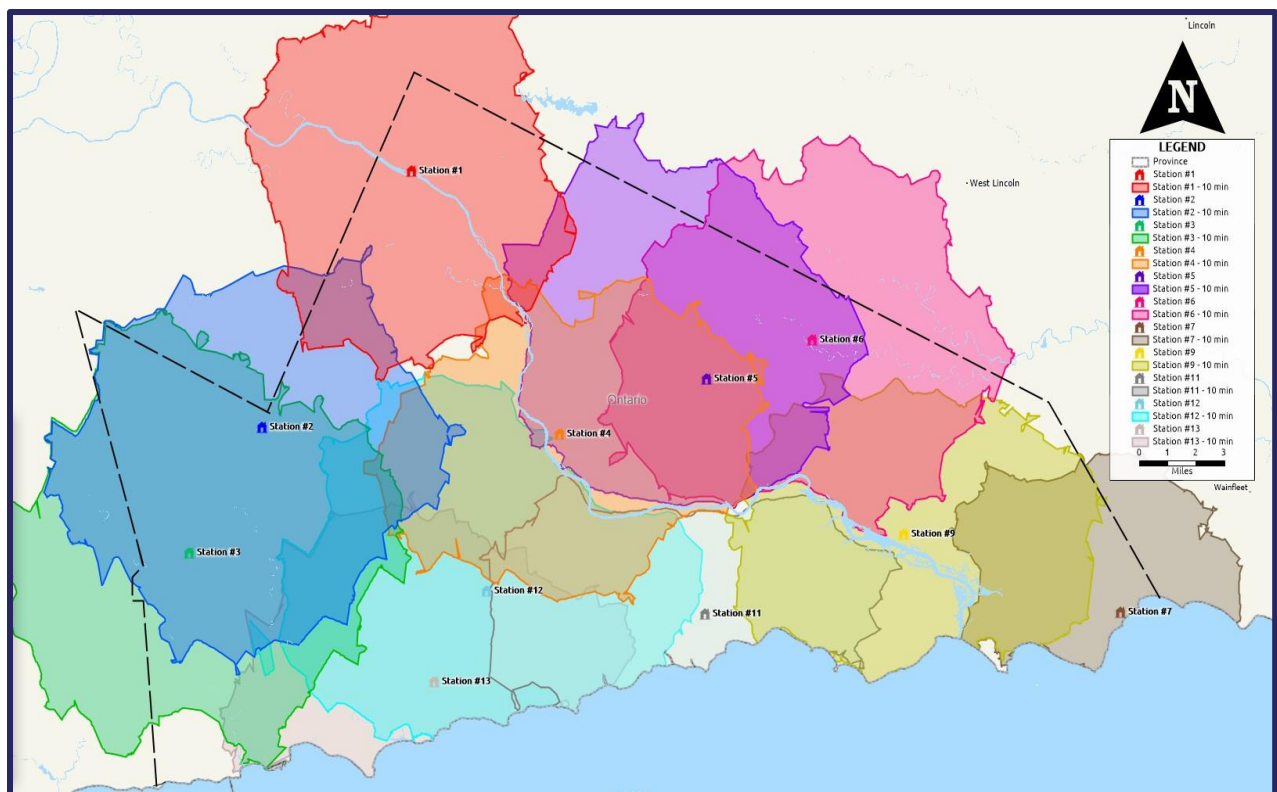
Note: In monitoring time measurements, the 80th percentile criterion is the recommended practice that is endorsed by the NFPA. This data is more accurate since it is evaluating the times based on 80% of the calls as opposed to averaging the times at the 50th percentile. For example:

- 8 out of 10 times the fire department arrives on scene in 10 minutes or less, which means that only 10% of the time they are above that 10-minute mark,
- as opposed to 5 out of 10 times (average) the fire department arrives on scene in 10 minutes or less, which means that 50% of the time they are above the 10-minute mark.

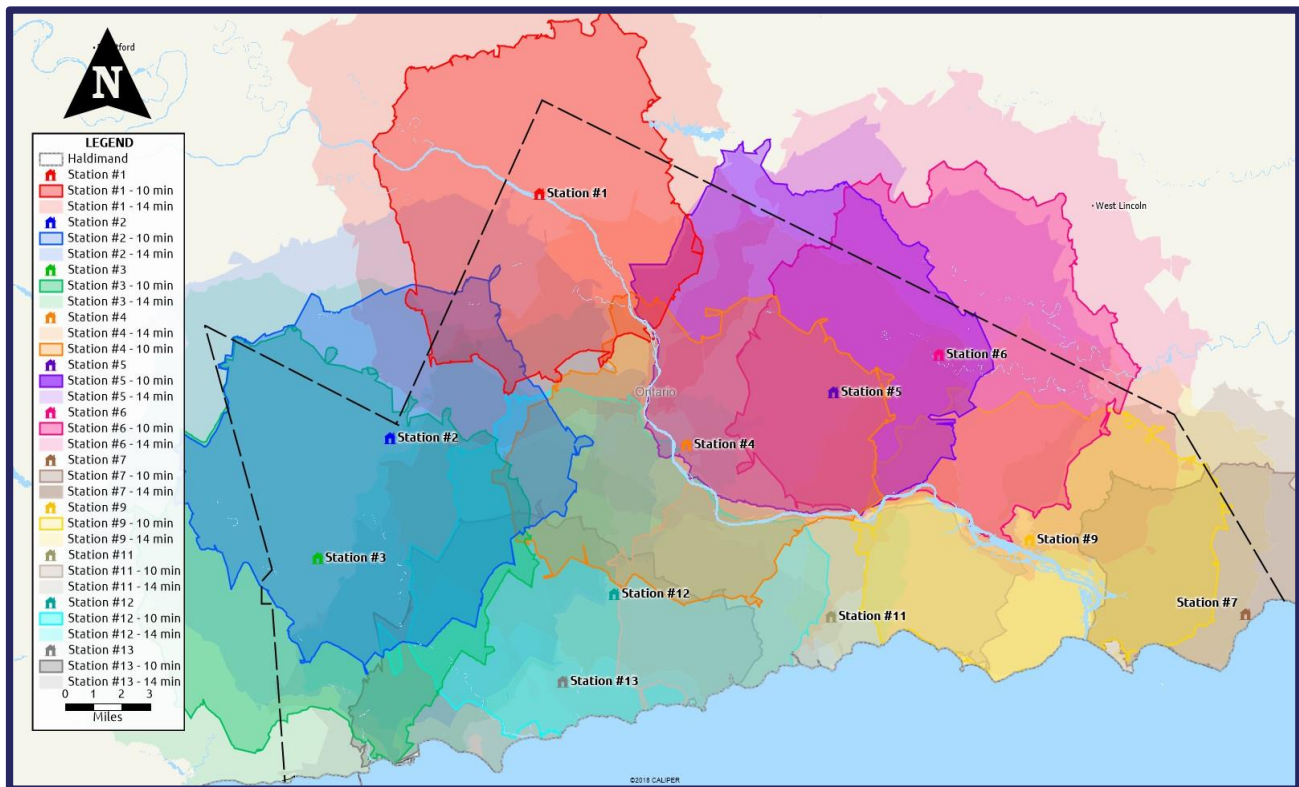
The travel time grids highlighted in Figure 6 are calculated using the GIS software Caliper Maptitude, which uses the road network with the posted speed limits, factoring in the direction of travel, traffic lights, and stop lights. While the posted speed limit is used, it is understood that, at times, fire apparatus responding to calls may exceed the speed limit if it is safe to do so, thus reducing the response time. Correspondingly, there will be times, due to weather conditions, construction, and traffic congestion, that the fire apparatus will be travelling at speeds lower than the posted speed limit (even using emergency lights and sirens). Therefore, using the posted limit is a reasonable calculation in determining travel distance.

A 10-minute drive time was utilized for the map grids. This allows for approximately 4-minutes from time of dispatch until the first fire truck responds from the fire station. This uses the overall 14-minute response time.

FIGURE #6: LOCATION OF THE CURRENT FIRE STATIONS – NOTING 10 AND 14-MINUTE DRIVE TIME GRIDS



***Note:** The first map shows only the 10-minute drive time for ease of reading. The second map includes an overlay of the 14-minute drive time as if the firefighters were at the station when the alarm sounded.*



Although the NFPA response times are not mandated, it would be beneficial for the Fire Chief to have a response time goal supported by council as a benchmark. It is recommended that the Fire Chief present a response time goal for the approval of the council, which may reference NFPA 1720 (2020 Edition) – the expectation of 6 staff in 14 minutes, 80th percent of the time as a start.

Fire Station Location

Deciding on where a fire station is located varies upon several factors:

- Relative fire risk values for various areas, occupancies, or properties
- Desired response times for each identified fire risk
- Information regarding the road network in the community including reasonable travel speeds, one-way streets, rail crossings, etc.
- Emergency vehicles and personnel necessary to assemble fire attack teams.

With the program tailored to the specific needs of a community, many fire response factors may be analyzed including:

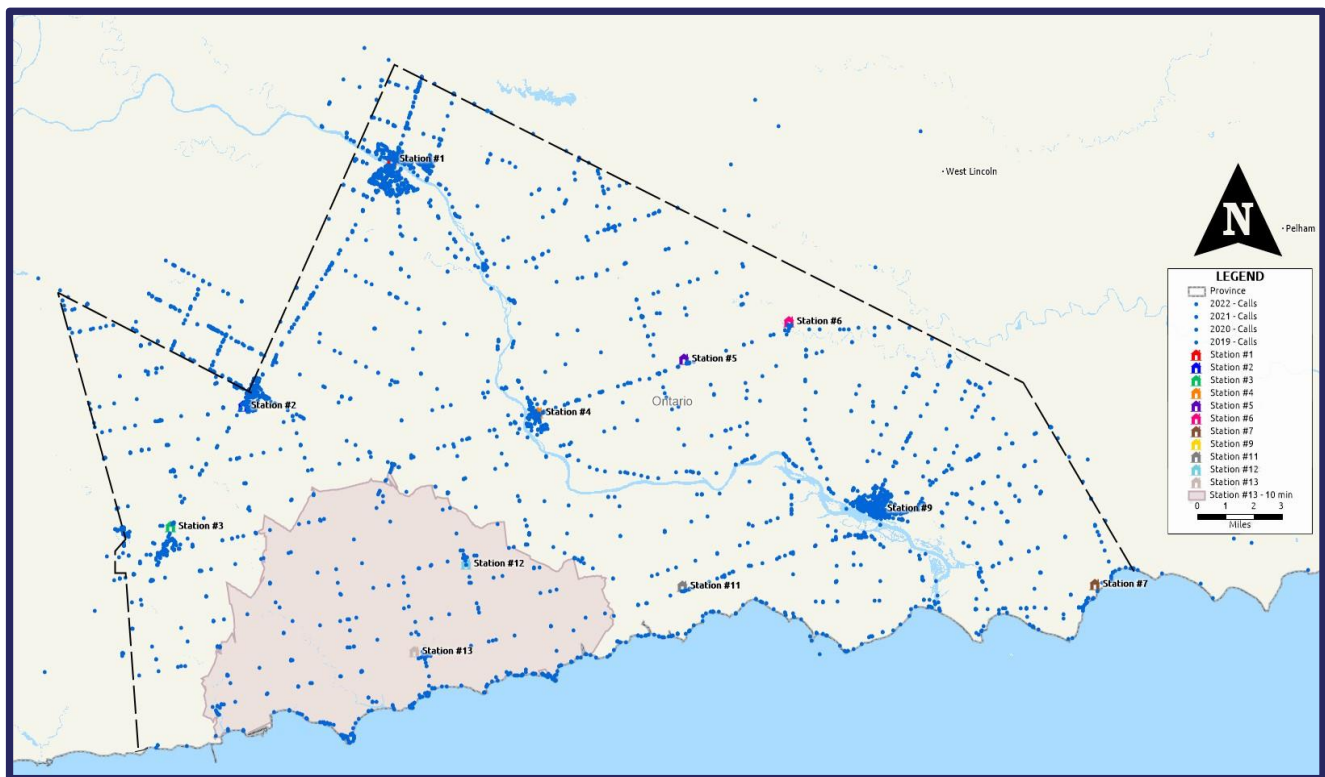
- Existing and proposed station locations based on desired response times

- Best and alternate emergency response routes to specific locations
- Ability of pumper, aerial, rescue, and support crews to cover all parts of the community based on desired response times
- Emergency response times for first, second and additional vehicles and personnel
- Areas for potential automatic aid responses.

Fire stations should be located where they can serve much of the protection area they are assigned, rather than for a specific hazard. For example, it may seem wise to place the fire station across from a nursing home. However, if many responses are to the residential or commercial areas at the other side of the coverage area, the station should be situated closer to that area but still could arrive at the nursing home in the desired time. No matter where a new fire station is located, the primary goal is serving the community in a timely manner by meeting NFPA Standards for response times.

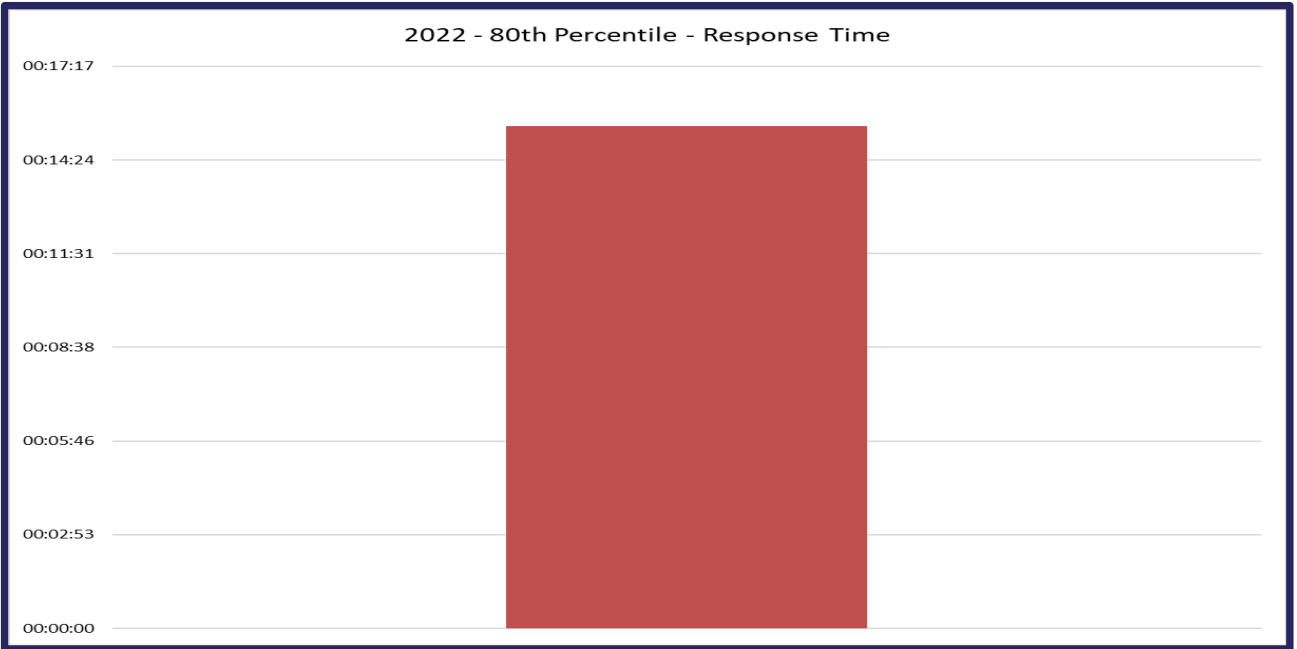
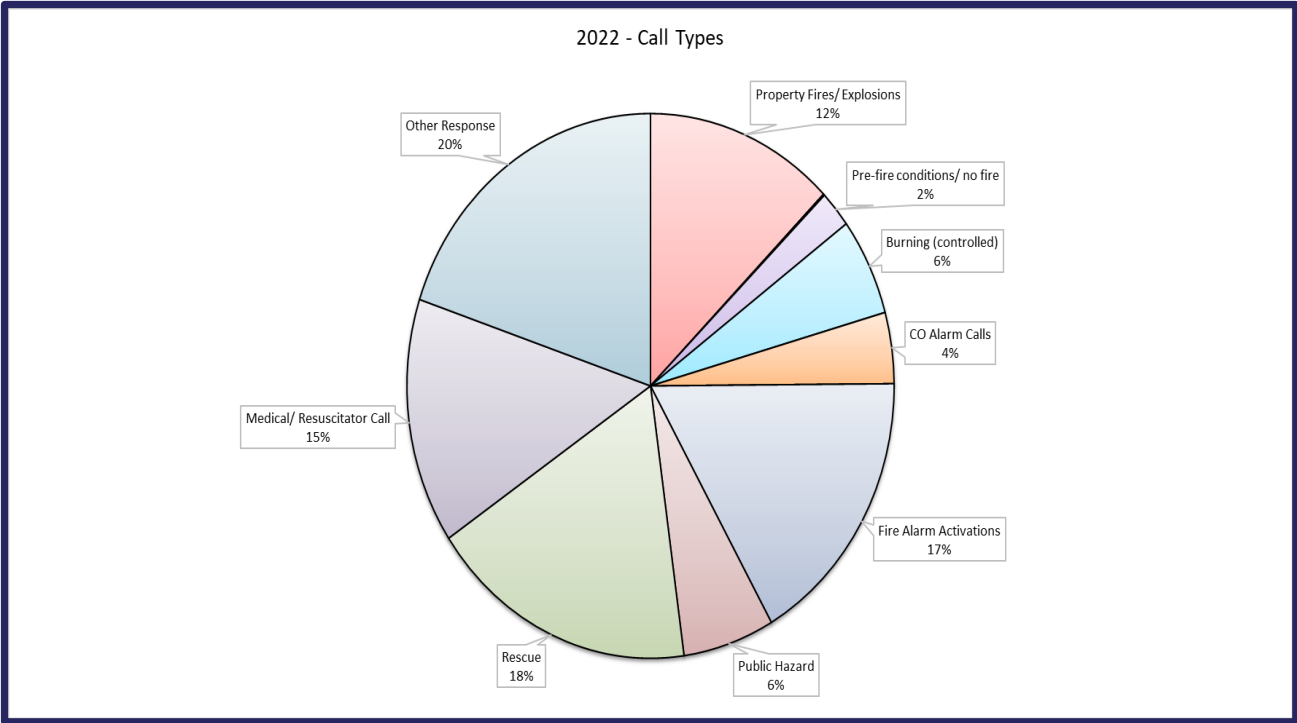
Identifying the location and concentration of calls within the County is a good indicator of whether a fire station(s) is located in an area to provide the best possible level of coverage and response time to the community. The following Call Cluster Map depicts where the calls from 2019 to 2022 have been occurring within the County.

FIGURE #7: CALL CLUSTER MAP (2019-2022)



The following charts (through the use, of the supplied data) help to identify the types of calls that are creating the bulk of response demands for the HCFD, along with the overall 80th percentile response for 2022.

FIGURE #8: CALL TYPES AND RESPONSE TIMES FOR 2022



The overall 80th percentile for 2022 was 15 minutes and 27 seconds; with a range from a low of 10 minutes and 21 seconds to a high of 18 minutes and 18 seconds. The NFPA goal is 14 minutes. Call response times are higher in the rural areas due to lack of staff during the daytime and increased travel times, which will affect overall response times. Although the NFPA Standard and its

recommendations are not legislated, they are viewed as industry best practices, and fire departments should set these as targets to meet.

5.2 Suppression Staffing

The primary type of staffing that HCFD is comprised of is a volunteer/paid on call system. This type of system has proven to be a very cost-effective model for the County. At present the Department responds to a total of 1,000 to 1200 calls per year. Each response district responds to a low of approximately 20 calls up to 290 per year, which is presently an acceptable level and expectation for a volunteer fire department to handle.

Research has identified that volunteer stations that respond to more than 350 calls per year are on the cusp of moving towards a semi-full time or wholly full-time type of staffing (within a specific area or station). This could be in the form of having a minimum level of (three or four) full-time firefighters on duty five days a week, during the daytime hours, with the evenings and weekends being covered by the volunteer firefighters. As call volumes increase so will the full-time staffing requirements.

The HCFD is close to this level of call volume for three of its stations (Hagersville, Dunnville and Caledonia), as such it is important that the Fire Chief monitor call volumes, response times and number of volunteer firefighters that are responding to these calls (as they are presently doing). An increase in response times and/or decrease in the numbers of volunteer firefighters that are responding to the calls could be an indication of possible burnout of the volunteers. This is something that the Fire Chief should continue to monitor and report to Council on an annual basis.

5.3 Recruitment and Retention of Volunteer Firefighters

Recruitment and retention of volunteers is becoming more of a challenge within the fire service with the increasing training that must be committed to on an annual basis and with staff turnover. As with many volunteer fire departments, the daytime hours from Monday to Friday are the greatest challenge for volunteer response due to fact that many volunteer firefighters are either at work, school, or taking care of family. In some instances, members have had to leave the department to move closer to their work location, education facilities, or family needs.

EMG has also been advised that the Fire Marshal has announced the implementation of mandatory training and certification for firefighters. As of July 2022, all firefighters and officers will be required to meet the upcoming training/certification requirements and related timelines noted in the new regulation. Based on this fire departments will need to conduct a full evaluation of their present training programs and implement whatever improvements are necessary to meet the new training and certification requirements. This increase in training will also add to the recruitment, and training of new recruits, along with the retention of present volunteers.

In a nationwide survey, the leading reasons why people stop volunteering include the following:

- No time to volunteer
- Conflicts within the organization

- Organizational leadership created an adverse atmosphere
- Too much training
- Attitude of existing personnel towards newcomers
- Criticism received from officers/ older members
- Lack of camaraderie

While some issues may be uncontrollable, other issues can be mitigated such as conflicts within the organization, leadership, training, attitudes, criticism, and camaraderie.

***Note:** the previously listed items are not a direct reflection on the status of the HCFD, who have been very proactive in its recruitment and retention programs. The noted points have only been listed for consideration in the department's recruitment and retention initiatives.*

Retention Issues:

The issue of retention has been identified as a challenge with just about every volunteer fire service. There are numerous reasons for leaving, including the firefighters not feeling appreciated by the municipality they volunteer for, the time and effort required for both training and response to calls, and even firefighter's family not being recognized for "loaning" their family member to the community.

Opportunities to increase retention may include:

- Family nights at the fire station that would include a movie and activities for the children.
- Assign a seasoned member to mentor each rookie when a new member joins the department.
- Conduct a firefighter appreciation events (e.g., dinner, BBQ) where members are recognised by council for their long term, outstanding service, or something exceptional they did at a call.
- Council take time to acknowledge, the employers, of the firefighters for permitting their participation in the fire department and/or permitting them to leave work to attend fire calls.
- Survey other fire services to compare pay rates and adjust the honorarium accordingly.
- Implement a service recognition pay incentive. This might include paying extra in the form of a 5 to 10% pay increase for every 5 years they have been on the department; this would prevent the loss of years of experience.
- Performance pay, for those who reach high percentages of attendance at training sessions and fire calls.
- Offer benefit packages as many may not have benefits at their place of employment, and some are self employed. Such packages would include basic dental, drug, and eyewear coverage.
- Purchase a wellness benefit package for the firefighters such as mental, financial, and family counseling.

- Engage in treating Post-Traumatic Stress Disorder (PTSD), which is a common illness among fire responders.
- Offer a RRSP/pension savings plan with contributions from the Town after they have been a member of the department for a predetermined length of time.
- Provide excellent training opportunities to make them want to remain a member of the fire department. Make the training sessions fun and memorable.
- Recognition and support of those who want to attend Fire College or regional courses, which sometimes requires firefighters using their vacation time from their full-time employers.
- The implementation of an “on call or platoon” program that would pay a week or weekend stipend to the volunteer firefighters who commit to being available by signing up for weekdays and/or weekends.
- Education assistance programs to support staff in their professional development.
- Maintain and improve morale by providing modern trucks, equipment, and stations.
- Endorse that each station designs their own logo for their station promoting their region of the town or the services they provide. They could include a tasteful mascot character. These could be placed on t-shirts and perhaps the apparatus as a sense of pride.
- Provide strong leadership that focusses on the Mission, Vision and Values of the department while resolving conflict resolution in a timely manner.
- Conduct exit interviews with those that leave the department to understand their reasons for leaving. While there may be simple reasons, there could be a deep-rooted issue that administration may not be aware was occurring such as taunting, bullying, harassment, a feeling of not being welcome, etc.
- Foster the history of each fire station by creating displays of pictures of past members, events, apparatus, to instill a sense of pride on how far the department has grown.

The HCFD is already implementing some of these noted recommendations. As such, they should be commended for their retention efforts. This list was simply intended for the Fire Chief to review and confirm what is being done and what options may exist. Some of these suggestions may imply an expense, but the value of keeping trained personnel longer, which in the end saves on the ongoing training of new firefighters is worth the effort.

It costs the County a large sum of money to train and equip new firefighters, therefore it is important that a means to retain their investment is developed and supported by council.

Another indicator for making this decision is tracking the number of volunteer firefighters that arrive at the fire station to respond. If, for example, the standard set by a fire department is that three or more volunteer firefighters must arrive at the station before the fire truck can respond, this should be monitored along with how many times the department is unable to assemble the needed personnel to effectively respond based on time of day, and day of the week. Continued monitoring of this data will assist with future fire service needs.

The Canadian Association of Fire Chiefs (CAFC) have also published a program – “Answer the Call” that is available on their website www.answerthecall.ca. It uses messaging and imagery to reflect the local challenges. Free of charges, there is a set of images that can be used as well as documentation that can be personalized to the organization. The “canned” images can, and do, reflect volunteers across all demographics, and the local community could add additional ones specific to their department. It has received significant support and it does not require considerable time or monetary investment.

Volunteer firefighter recruitment is a challenge in virtually every jurisdiction of Canada and utilizing resources available to promote recruitment and retention is always advisable.

5.4 Health, Fitness, & Wellness

Health and wellness of staff is a key focus for all municipalities and Haldimand County is no exception. Due to the nature of firefighters maintaining a separate primary vocation, a focus on fitness can be overlooked. The inherent nature of firefighting is both stressful and physically demanding. Even though, the new recruits must pass a fitness test before being hired. During the review of the fire stations, it was noted that they are not equipped with workout facilities. To support this fitness and wellness endeavour, the fire department should work towards installing and standardizing the fitness equipment at all stations and having a fitness instructor work with the volunteers and full-time staff to set up a proper workout program and/or at the very least demonstrate the proper and safe way to use the exercise equipment. The department should also have SOGs relating to the proper use of the fitness equipment.

Many fire departments routinely test their firefighters to meet occupational fitness tests delivered internally or by a third party. NFPA 1582 details basic expectations placed upon firefighters. HCFD is encouraged to review these and incorporate them into both candidate testing and firefighter fitness and functionality. It is recommended that, as part of a larger commitment to firefighter health and wellness, HCFD review the physical expectations of a firefighter for use in training and recruiting.

NFPA 1582 *Standard on Comprehensive Occupational Medical Program for Fire Departments, Section 5.1* identifies 14 essential job tasks that detail the physical and physiological strains placed on firefighters. The standard outlines the requirements for a department medical program including certain conditions that may pose a risk to firefighting. As the core determination for the physicality of firefighting, it is important for HCFD to understand the expectations they are placing on their personnel. These job tasks are listed in the Standard as:

5.1 Essential Job Tasks and Descriptions

5.1.1 The fire department shall evaluate the following 14 essential job tasks against the types and levels of emergency services provided to the local community by the fire department, the types of structures and occupancies in the community, and the configuration of the fire department to determine which tasks apply to their department members and candidates:

1. While wearing personal protective ensembles and self-contained breathing apparatus (SCBA), performing firefighting tasks (e.g., hose line operations, extensive crawling,

lifting, and carrying heavy objects, ventilating roofs or walls using power or hand tools, forcible entry), rescue operations, and other emergency response actions under stressful conditions, including working in extremely hot or cold environments for prolonged time periods.

2. Wearing an SCBA, which includes a demand valve-type positive-pressure facepiece or HEPA filter mask, which requires the ability to tolerate increased respiratory workloads.
3. Exposure to toxic fumes, irritants, particulates, biological (infectious) and nonbiological hazards, and heated gases, despite the use of personal protective ensembles and SCBA.
4. Depending on the local jurisdiction, climbing six or more flights of stairs while wearing a fire protective ensemble, including SCBA, weighing at least 50 lb (22.6 kg) or more carrying equipment/tools weighing an additional 20 to 40 lb (9 to 18 kg).
5. Wearing a fire protection ensemble, including SCBA, that is encapsulating and insulated, which will result in significant fluid loss that frequently progresses to clinical dehydration and can elevate core temperature to levels exceeding 102.2°F (39°C).
6. While wearing personal protective ensembles and SCBA, searching, finding, and rescue-dragging or carrying victims ranging from newborns to adults weighing over 200 lb (90 kg) to safety despite hazardous conditions and low visibility.
7. While wearing personal protective ensembles and SCBA, advancing water-filled hose lines up to 2 ½ in. (65 mm) in diameter from fire apparatus to occupancy [approximately 150 ft (50 m)], which can involve negotiating multiple flights of stairs, ladders, and other obstacles.
8. While wearing personal protective ensembles and SCBA, climbing ladders, operating from heights, walking, or crawling in the dark along narrow and uneven surfaces that might be wet or icy, and operating in proximity to electrical power lines or other hazards.
9. Unpredictable emergency requirements for prolonged periods of extreme physical exertion without benefit of warm-up, scheduled rest periods, meals, access to medication(s), or hydration.
10. Operating fire apparatus or other vehicles in an emergency mode with emergency lights and sirens.
11. Critical, time-sensitive, complex problem solving during physical exertion in stressful, hazardous environments, including hot, dark, tightly enclosed spaces, that is further aggravated by fatigue, flashing lights, sirens, and other distractions.
12. Ability to communicate (give and comprehend verbal orders) while wearing personal protective ensembles and SCBA under conditions of high background noise, poor visibility, and drenching from hose lines and/or fixed protection systems (sprinklers).
13. Functioning as an integral component of a team, where sudden incapacitation of a member can result in mission failure or in risk of injury or death to civilians or other team members.
14. Working in shifts, including during nighttime, that can extend beyond 12 hours.

The 14 essential job tasks explained in NFPA 1582 lay the groundwork for NFPA 1583 *Standard on Health-Related Fitness Programs (HRFP) for Fire Department Members*. NFPA states that “this standard outlines a complete HRFP for members of fire department involved in emergency operations to enhance their ability to perform occupational activities and reduce the risk of injury, disease, and premature death”.

The applicable portion of the standard comes from Section 4.1 wherein it states:

4.1 Program Overview

- The fire department shall establish and provide a HRFP that enables members to develop and maintain a level of health and fitness to safely perform their assigned functions.

The occupational health and safety program provides direction on performing assigned functions in a safe manner. The HRFP allows members to enhance and maintain their optimum level of health and fitness throughout their tenure with the fire department. Education, one provision of a health-related fitness program, allows a means for improving health and fitness throughout the organization. The organization needs to provide the recognition and support to ensure the promotion and success of this process. Health and fitness needs, to become a value within the organization just as safety is a value.

Data suggests a correlation between the following:

1. A proactive approach to health and fitness and a decrease in debilitating occupational injuries.
2. A reduction in workers compensation claims and a decrease in acute and chronic health problems of firefighters.

Combining the health-related fitness program with a proactive occupational safety and health program provides a fire department with the level of quality needed for its members. It is suggested that, as part of a larger commitment to firefighter health and wellness, HCFD review the 14 essential job tasks from NFPA 1582 as they pertain to their recruitment and testing process and seek options for offering personnel the ability to exercise and maintain fitness levels as explained in NFPA 1583.

In 2017, emergency services organizations were required by the Ontario, Ministry of Labour to submit a PTSD Prevention Plan. This was to coincide with PTSD and Occupational Stress Injuries (OSI) to be considered as workplace injuries and compensable through the Workplace Safety & Insurance Board. The HCFD has a package available to its members outlining what PTSD is, the dangers it presents, training, on-going support, early intervention, WSIB claims management, recovery, and return to work.

It was also noted that after every traumatic call the duty officer follows up on the situation and an exposure report is placed on file. If any other incident occurs with the same firefighter, a check in is made to ensure that the firefighter is doing ok and to also confirm that personal and emotional support mechanisms are in place when/if needed. The Fire Chief noted that they are looking at implementing a fire peer program, but it is not in place at this time.

HCFD has included all its fire department staff in the Employee Assistance Program (EAP) offered through VFIS as an initial contact. This is part of their PTSD program. However, ensuring that the firefighters have full EAP coverage for all related needs is an important piece of employee wellness. The Fire Chief should meet with County staff who oversee EAP and related programs to ensure that firefighting personnel are fully aware of what benefits the EAP offers, should they need it. This may require a more inclusive package. As an opportunity to improve retention of the volunteer firefighters, this EAP could be offered as a family package.

5.5 Cancer Prevention

In recent years there has been a more intensive review of cancer prevention and a correlation of the disease to firefighting. The focus has been on contamination control surrounding fire incidents. From pre-fire, incident duration, to cleaning and decontamination post-fire, all aspects of prevention are currently under review by all levels of fire service management. The department does have decontamination kits to start the decontamination procedures, which is a definite positive. However, more still needs to be done. It is suggested that, as part of a larger commitment to firefighter health and wellness, HCFD begin work on a cancer prevention program. This may include items such as, but not limited to:

- Post-fire decontamination of personal protective equipment (PPE)
- Firefighter hygiene at fire scenes
- PPE during handling of contaminated gear/equipment
- Documenting potential exposures
- Reducing exposures to diesel exhaust

Section 21 Guidance Note – Firefighters Cancer Prevention Checklist, would be a good reference in developing such a program along with Section 21 Guidance Note on Hygiene and Decontamination.

Many of the fire stations are not equipped with “at source” diesel exhaust extraction systems (that attach to a vehicle’s exhaust pipe) to reduce exposure to vehicle exhaust. Presently, just the Hagersville and Cayuga station have these systems in place. And the plan is to install these in all new fire stations.

Diesel exhaust has been contributed to health issues when people are exposed to it over long duration. By having these systems in the station, the health concern is greatly reduced. This would be a positive feature towards cancer prevention by having a system installed in the station.

In reviewing the Personal Protective Equipment (PPE) program, also known as structural firefighting ensemble, it was noted a plan has been established to review PPE inventories and forecasted replacements are identified so that budgetary submissions are effectively managed. This is important to note as NFPA 1851 Standard on *Selection, Care and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* states in Chapter 10:

- Structural fire fighting ensembles and ensemble elements shall be retired in accordance with 10.2.1 or 10.2.2, no more than 10 years from the date the ensembles or ensemble elements were manufactured.

The appendices, to that section also references that "...it is imperative that the protective elements be routinely inspected to ensure that they are clean, well maintained, and still safe". HCFD has a program that PPE is inspected and cleaned in-house, and that there is a cache of used gear that can accommodate a portion of the Department. HCFD is also working towards the issuance of Nomex coveralls which will allow for a quick change (from any smoke contaminated gear) into acceptable station wear in the case of having to respond to another call in which the firefighters can at least work at the exterior of a fire scene until another set of bunker gear can be provided.

HCFD has standard operating guidelines on PPE/Bunker Gear inspections and cleaning. There is a need for ongoing/refresher instructions ensuring the correct re-assembly of the ensemble, including how to check that the Drag Rescue Device (DRD) has been properly installed.

Cancer prevention may begin at the scene of a structure fire. The bunker gear becomes laden with contaminants and smoke, and off gas for some time after a fire. By decontaminating the firefighters at the scene of the fire and ensuring they do not wear their dirty gear back to the station or transporting it in the cab of the truck, is the step in the right direction of cancer prevention.

On a very positive note, the HCFD has started to invest in this health and wellness issue. Several new trucks have the separate compartments for transporting contaminated gear, which will continue with the ongoing replacement of the fleet.

Use of Personal Vehicles for Response

The only time firefighters can respond to the scene in their personal vehicles is when they get to a fire station and the fire vehicles are gone. If that is the case, then they must first radio the on-scene incident commander to confirm if they are needed.

If any firefighter does respond to the scene in their personal vehicle, then they must fully decontaminate at the scene before using their personal vehicle. No contaminated gear is to be transferred in personal vehicles. This is the policy of the department.

Cancer prevention does not stop at just taking off and bagging the bunker gear for cleaning at the fire station, the individuals clothing may also contain cancerous contaminants. The hygiene and decontamination program should also address the firefighters personal clothing or uniform worn in the fire. This may see the necessity of the firefighters having spare clothing at the fire station or in their personal vehicle, available for them to change into after they have showered at the station. This clothing should also be washed at the fire station and not taken to the residence to be washed as they are then introducing the contaminants to members of their family.

A fire department exposure report should and is completed each time a firefighter is exposed to the products of combustion.

5.5.1 Mental Well Being

Like law enforcement, paramedics, and military personnel, firefighters are regularly exposed to critical incidents. A critical incident can be described as:

- A near miss that threatened the health and safety of a member of the Department. This can include a situation where a member of the department experienced an event that could have resulted in significant harm or was a close call where they escaped significant harm.
 - The suicide or attempted suicide of a co-worker.
 - The sudden death of a fellow firefighter.
 - The loss of a patient after a rescue attempt.
 - The death or a critical incident involving a child.
 - A prolonged rescue or incident with excessive media coverage.

Being regularly exposed to horrific events can lead to critical incident stress. A critical incident can best be described as a normal reaction to an abnormal traumatic incident. Exposures to critical incidents can impact firefighters later in life and it is critical to have a formal record of critical incidents to assist a firefighter for a workplace injury if they are struggling due to PTSD.

Mental health takes on a critical importance in high-stress, high-risk work settings, such as those in which first responders operate, where their own functioning has serious implications for the health, safety, and security of the public they serve.

Firefighters are the greatest asset of any fire service, and it is imperative that their mental well being is addressed in a genuine, consistent, and professional manner. This may include the establishment of a PTSD prevention plan by a committee of firefighters, chief officers, and mental health professionals. The "*Supporting Ontario's First Responders Act*" requires employers to have a PTSD program.

The plan should include:

- An introduction about the plan.
- Goals and objectives
- Prevention and education focus areas
- Screening and initial intervention focus areas
- Support, WSIB claims management, recovery and return to work focus area
- An overview of PTSD, risk factors, signs, and symptoms.
- Legal requirements of the County under *the OHS*A Regulations.
- Organizational PTSD practices (promoting good mental health).
- Organizational anti-stigma practices.

- Roles and responsibilities for prevention, intervention, recovery, and return to work.
- Training on awareness and anti-stigma, recognising the signs and symptoms and responding to signs of PTSD, postexposure education and awareness.
- Develop a handbook that identifies what PTSD is, and its signs and symptoms, for family members to reference which also includes agencies, EAP program or peer support groups that may be of assistance.
- Consider initiating a chaplaincy program for the department as another form of support for members and their families, not only for situations involving PTSD, but everyday life, and the situations that may arise.

5.6 Communications

Dispatching services for HCFD are provided by the St. Catharines Fire Department. Haldimand County is one of twelve departments served by St. Catharines. Collectively, the departments within the dispatch agreement meet with St. Catharines to review issues and updates. This open communication is in the best interests of the group. The current dispatch agreement was initially set to expire at the end of 2022, but this date has been moved to the end of 2023.

The dispatch agreement outlines criteria relating to relevant NFPA standards. Section 10(e) of the agreement states in part:

"...shall work towards operating at the National Fire Protection Association 1221, Chapter 7 Standard for Dispatch Operations Level. The parties acknowledge that such performance targets are targets only and not an obligation of St. Catharines"

Section 10(f) of the agreement also states in part:

"...use best efforts for communications personnel to meet the current edition of NFPA 1061 Standard for Public Safety Telecommunicator Professional Qualification, without prejudice".

St. Catharines current communicator staffing is certified to NFPA 1061, and new hires are required to meet this expectation. The 700MHz trunked radio system is designed and maintained to meet existing standards. The communications team in St. Catharines is working towards upgrading and improving systems and procedures to meet the performance targets set out in the standards.

HCFD firefighters are notified by pager and text message. The fire department utilizes a cellular phone-based application "*I AM Responding*" to assist with notification to fire department personnel. The software allows for two-way communication by not only notifying firefighters, but allowing them to update their response, location, and availability. These platforms often offer additional services to users. These may include data analytics, electronic maintenance forms, and subgrouping for select notifications required for special messaging. HCFD is encouraged, if not already, to utilize any current or future applications with their chosen software to fully realize the potential and find efficiencies with the costs they incur for the software.

While Haldimand EMS is dispatched by Hamilton Central Ambulance Communication Centre (CACC), all fire tiered emergency medical calls are dispatched via St. Catharines Fire. With a planned overhaul of call management at the CACC to the *Medical Priority Dispatch System* (MPDS) in 2023, there can be an expected change in how fire departments will manage emergency medical response. As the Fire Chief is also the Paramedic Chief, the transition may better be managed as information is readily available. Some fire departments in Ontario are looking to the front-runner regions that implement MPDS early to assess the impact of call volumes and response criteria. HCFD is in a strong position to react and adapt accordingly with Niagara Region set to begin implementation ahead of them.

5.6.1 Next Gen 9-1-1

In June of 2017, the Canadian Radio-television and Telecommunications Commission (CRTC) created regulations regarding the Next Generation Communications for 9-1-1 centers. The following is an excerpt from the CRTC website regarding the program and its benefits for enhancement to public safety communications.

Canadians depend on the provision of reliable and effective 9-1-1 services to seek help in an emergency. As technology and consumers' needs evolve so do consumers' expectations when related to 9-1-1 services. In the coming years, telecommunications networks across Canada, including the networks used to make 9-1-1 calls, will continue to transition to Internet Protocol (IP) technology. This will enable Canadians to access new, enhanced, and innovative 9-1-1 services with IP-based capabilities, referred to as next-generation 9-1-1 (NG9-1-1) services. For example, Canadians could stream video from an emergency incident, send photos of accident damage or a fleeing suspect, or send personal medical information, including accessibility needs, which could greatly aid emergency responders.

As the Haldimand County Fire Department is contracted with St. Catharines Fire Department for dispatch services, they are dependent on the plans of their provider as it relates to NG911. St. Catharines has stated that they are partnering with Niagara Regional Police, who serve as their backup site, to implement an NG911 upgrade. They report that the RFP for this project is set to be released in late 2022, with work beginning in the fourth quarter of 2023. This information is shared with all stakeholders, including Haldimand.

The CRTC has identified the full rollout of NG911 is expected by March 30, 2024, when all PSAP must decommission their old networks. St. Catharines is expected to meet this deadline, which will put Haldimand in a strong position to be working with a compliant partner.

5.6.2 Radio Infrastructure

Haldimand County Fire Department manages radio infrastructure across eleven stations. They currently operate on the VHF analog system. The radio infrastructure consists of 215 portable radios spread over eleven stations. The portable radio deployment, as provided, is detailed in **Table #3**. The department is transitioning from an older style unit (Motorola HT1250) to a digital capable unit (Motorola XPR3500). To date, 44% of the stock is still the older unit. The current radio and pager

replacement strategy is based on market costs, but the department is on track to finish the upgrade within twenty-four months.

TABLE #3: RADIO DEPLOYMENT

Station	Radios	Station	Radios	Station	Radios
Caledonia	23	Hagersville	23	Jarvis	20
Cayuga	20	Canfield	20	Camborough	17
Lowbanks	17	Dunnville	23	South Haldimand	16
Fisherville	16	Selkirk	20		

In communications with EMG, the Fire Chief stated that when the current units are due for replacement in 5 to 10 years, they consider a complete replacement plan. While incurring a larger single price point, this would provide better bulk purchasing, standard warranties, improved inventory tracking, and current technologies. For a department the size of HCFD, and managing a radio infrastructure of that size, this plan is in the best interests of the department and supported by EMG.

The radio system is still operating on a VHF analog system and has not migrated to a digital platform. In communications with EMG, Haldimand Fire senior management stated that there are plans for a migration to digital radio systems. They have budgeted accordingly for hardware costs within the next ten years. They have indicated that contract expenses have not yet been discussed. However, the dispatching contract with St. Catharines Fire was extended to the end of 2023, and will be negotiated in 2023 for 2024. This will benefit the department in utilizing newer technologies available in radio systems as they replace the existing stock. Digital radio systems offer marked improvements over analog radio systems, including better voice quality, greater capacity, stronger coverage and longer battery life. As HCFD grows, the necessity of improved communications systems will become evident.

Section #5 - Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
11	HCFD develop a formal health and wellness program that includes all facets relating to fitness, cancer prevention, PTSD and EAP peer support.	Staff Time	Immediate (0-1 year) ongoing	Ensuring the health and wellness of the volunteers and staff is a responsibility of the County.	Health and wellness are legislated programs.
12	HCFD monitor its ability to meet effective response times based on NFPA 1720. Focus on the three stations that are nearing the 300 call per year mark to ensure that response times and number of volunteers are being affected by the level of calls.	Staff Time	Immediate (0-1 year) ongoing	By monitoring and measuring the department's response times, the Fire Chief will be better able to report the level of effectiveness of the Department to Council. This type of measurement will also help to identify issues and possible gaps in response coverage.	The fire stations that are nearing the 300 call per year mark are Hagersville, Dunnville, and Caledonia.
13	The Fire Chief should work with communication/dispatch stakeholders to ensure that the needs of Haldimand County Fire Department are properly reflected in the updated dispatch agreement.	Approx. cost of \$10,000.00	Short-term (1-3 years)	Ensuring a strong and dependable dispatching service for the HCFD is critical to having an effective and efficient service.	Presently, the County is paying \$120,000 a year for this service and ensuring the Fire Department's needs are met is recommended.

Rec #	Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
14	Haldimand County continue to work with St. Catharines to ensure that timelines and costs are properly managed for stakeholders and partners in the NG-911 migration.	Staff time and possible vehicle upgrades when being replaced	Transitional time – Mid-term (4-6 years)	Ensuring a strong and dependable dispatching service for the HCFD is critical to having an effective and efficient service.	The NG-911 program is being federally mandated.
15	The Fire Chief finish the radio infrastructure replacement schedule, and in five years begin a review of another replacement plan with an implementation schedule of up to ten years.	Staff time with possible equipment upgrades	Mid-term (4-6 years)	Ensuring a strong and dependable dispatching service for the HCFD is critical to having an effective and efficient service.	The Fire Chief and staff are conducting this review, which will need to be updated as required.
16	The Fire Chief establish a digital migration implementation plan with St. Catharines Fire Department (or other service provider).	Staff time with possible equipment upgrades	Mid-term (4-6 years)	Ensuring a strong and dependable dispatching service for the HCFD is critical to having an effective and efficient service.	The NG-911 program is digitally based. So, fire departments presently on analog systems will need to upgrade.



SECTION 6

Facilities, Vehicles,
Equipment & Water Supply



SECTION 6: FACILITIES, VEHICLES, EQUIPMENT & WATER SUPPLY

6.1 Fire Station Review

A review of the existing fire stations was conducted by EMG and will be addressed in this section. It should be noted that the walkthrough of the fire stations was a visual inspection; no destructive testing or engineering assessment was conducted.

Fire stations should be positioned to offer the most efficient and effective response to the community they serve. Centering them within a determined response zone that is simply based on “timed” responses is not necessarily the best option to implement. Fire station location depends on many factors such as key risks within the response zone, future growth of the community, and the response team composition (full-time vs. volunteer firefighters). Another consideration is the geographical layout of the community that can include natural barriers or divides, such as water, that may make it necessary to have some stations located within proximity of each other.

Distance and travel time may be a primary consideration; however, if a basic expectation of response time is set by the community’s decision makers, then a more realistic level of service and fire station location criteria can be identified.

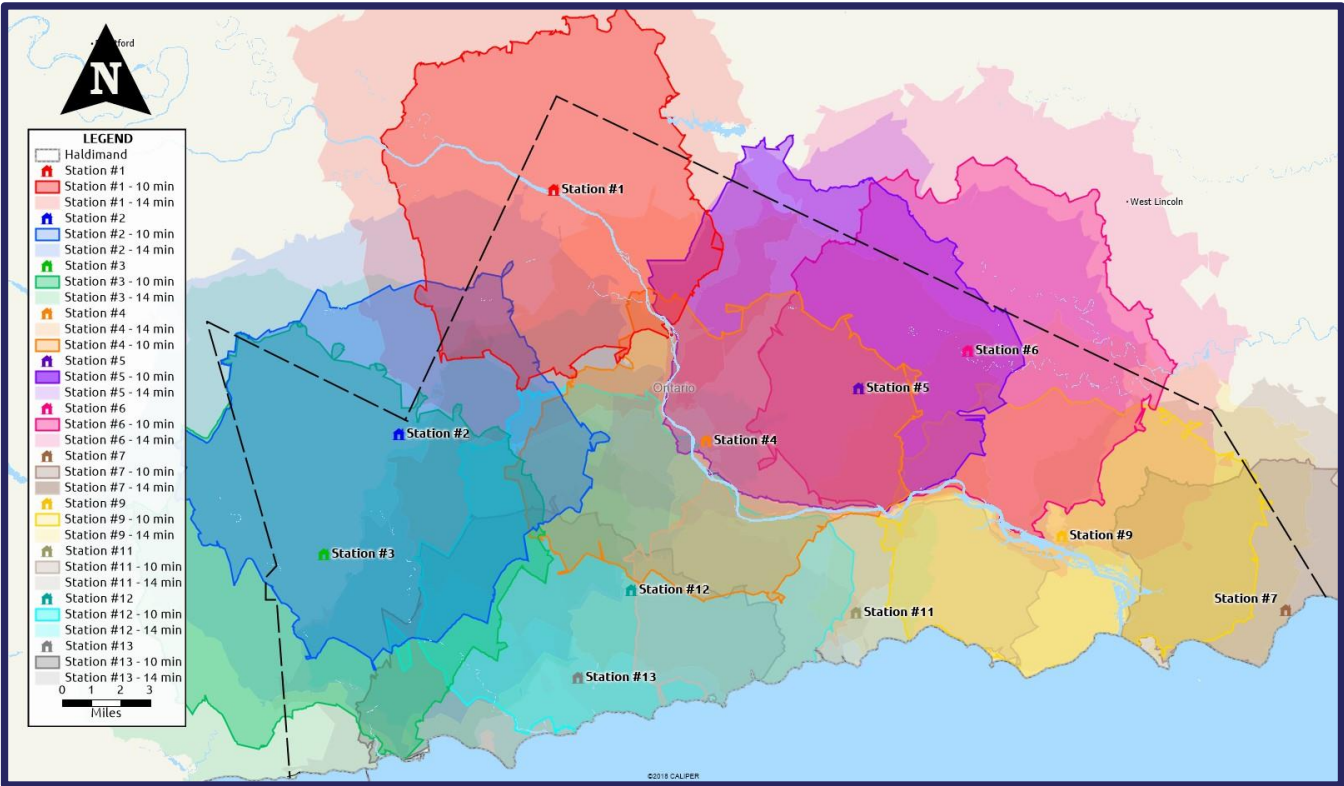
The following maps, depict where each station is located throughout the County, with the second map indicating a response time zone based on the NFPA recommended 14-minute overall response. The zones around each station represents 10-minute drive time, minus 4-minutes for volunteers to arrive at the station and then respond in an emergency services vehicle. The 4-minute response to the fire station is used in overall averaging.

The response mapping and related response data supplied in this document should not be taken in isolation. A full in-depth study along with an annual report submitted to Council by the Fire Chief with an update on the key performance measures and expectations is required.

FIGURE #9: LOCATION OF THE FIRE STATIONS



FIGURE #10: DRIVE TIME OF 10 AND 14-MINUTES FROM THE FIRE STATION



As can be seen in the response zone map, the County is almost 100% covered by the fire stations, based on a 10-minute drive time and fully covered by the 14-minute drive time. In fact, there are some areas, that have quite a bit of overlapping coverage.

6.1.1 Haldimand County Fire Stations

HCFD provides emergency service response from 11 fire stations. Based on visits to the stations, the buildings appear to need varying levels of repairs and updating of facilities. Each station will be addressed individually.

Notes:

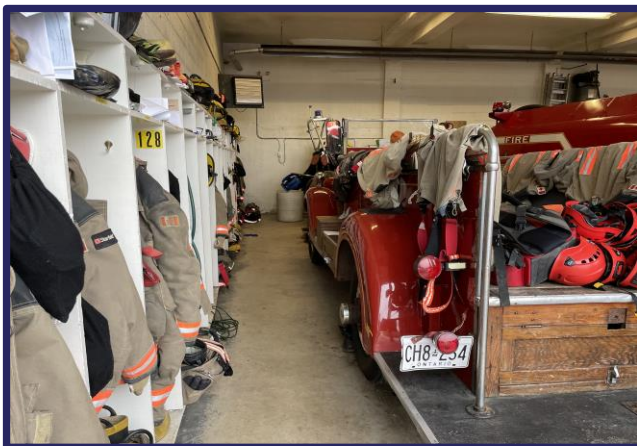
- *The station reviews in this report are general in nature. Therefore, if more in-depth structural analysis is desired by the County, then a comprehensive station/facility review should be undertaken.*
- *Any health and safety related items have been bolded and italicized.*
- *A further overview of general health and safety related issues is also included at the end of this station review section.*

Station #1 – Caledonia North

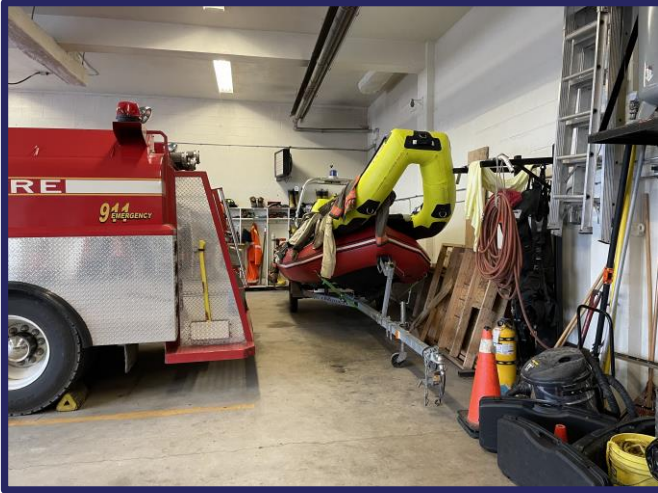
Station #1 is a two-storey station that has four bays for fire apparatus. This is not a drive-through station. The station was built in 1960. This station currently houses Pumper, Rescue, Tanker and Boat.



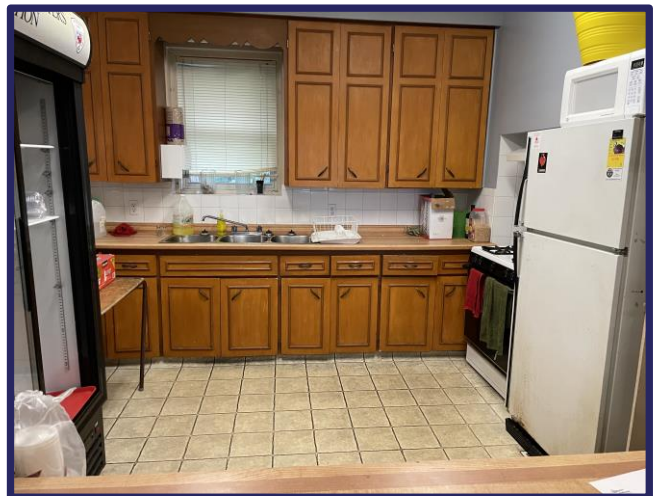
Apparatus Bays



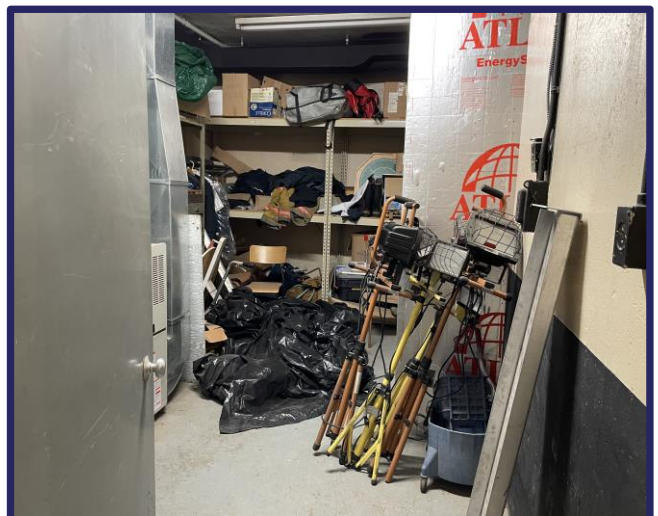
The station is equipped with a bunker gear extractor for washing of firefighter gear. There is also a unit for filling of breathing apparatus cylinders.



Office and Kitchen Areas



Training Room and Storage Areas





Station Concerns:

- Lack of storage for equipment
- There is no diesel exhaust removal system in the station
- Firefighting gear exposed to exhaust contamination
- Floor drains may not have oil separators in them

All these concerns will be addressed with the new station which started construction in July 2023. Once the new hall is built, the Main Station will house 1 Pumper, 1 aerial, 1 Rescue, 1 Tanker and 1 Boat. The South Station will house a Pumper.

Station #1 – Caledonia South

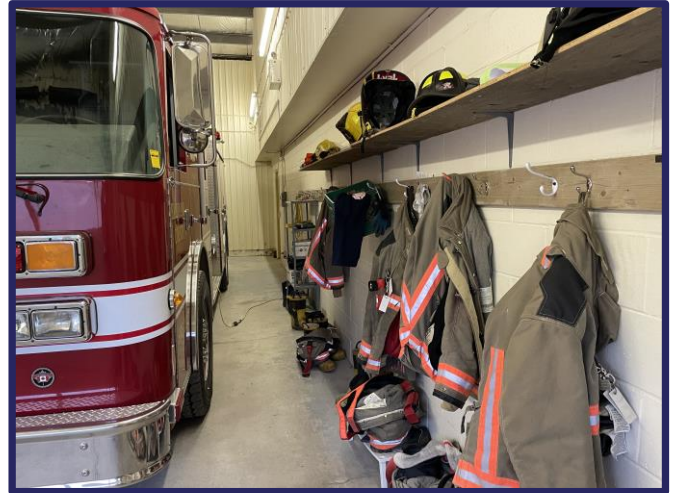
This is a one bay fire station that was built in 2004. It is a combination fire/EMS station, with one aerial truck responding from this location. The station is in the same community as the northern station.

The need for the two stations is based on the Grand River separating the town into north and south. The main link between the north and south is the Argyle Street Bridge. If the bridge is out for any reason, fire department response is greatly delayed if there is a need to get to the other side of the community. Hence the need for two stations in proximity.

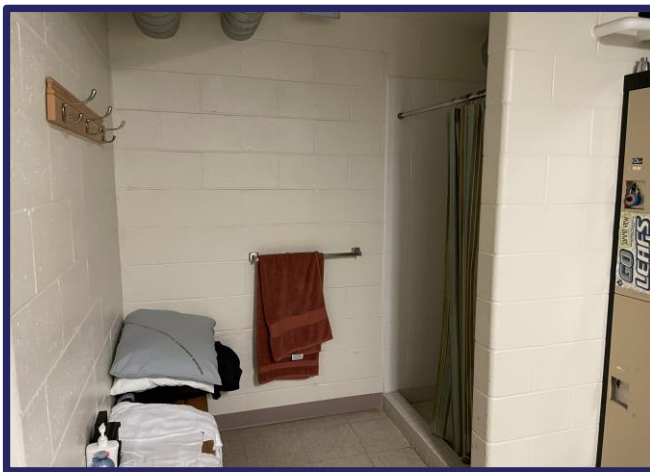
It was noted that in the future, EMS will go to the north station, and the single bay (at this south station) would be a standby location for EMS, which means that fire will take over the two-bay area. This will require renovations due to need to accommodate storage of equipment, such as extra hose, SCBA cylinders, bunker gear, etc., along with the need for upgraded kitchen, office, and meeting areas.



Apparatus Bay - Space and Storage Concerns



Washroom Facilities – With Showers



Although the washrooms are located on the EMS side of the facility, fire personnel do have access to them.

Station Concerns:

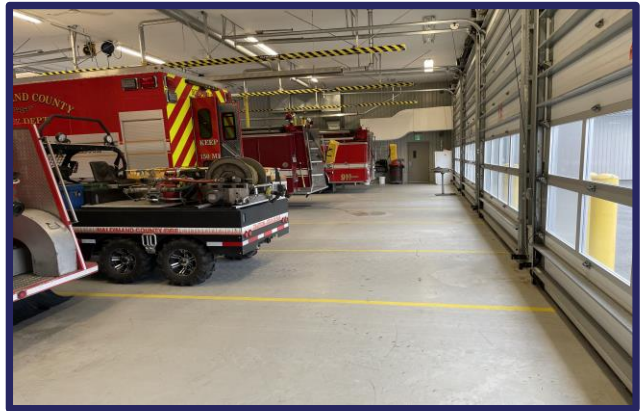
- Lack of storage for equipment
- There is no diesel exhaust removal system in the station
- Firefighting gear exposed to exhaust contamination
- Floor drains may not have oil separators in them

Station #2 – Hagersville

This is a joint fire/EMS facility that was built in 2015. The fire station has four bays and is a drive through facility.



Apparatus Bays



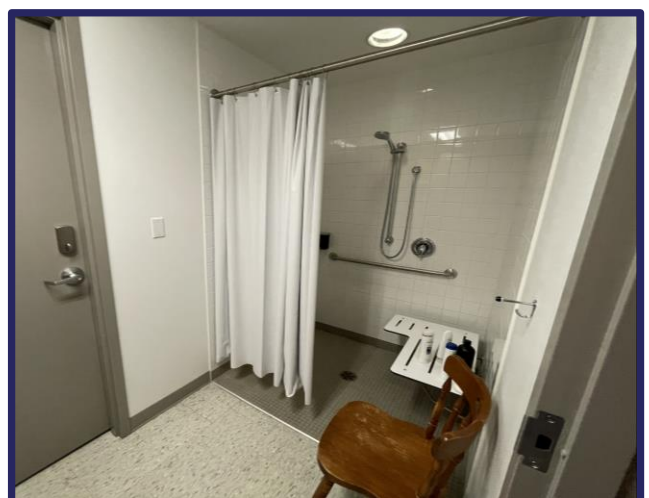
Gear Storage



Training Room and Kitchen Area



Washrooms



This is a well laid out fire station with diesel exhaust extraction system along with proper firefighter bunker gear storage, and washroom/shower facilities. This station is also equipped with an SCBA filling station.

No concerns were noted.

Station #3 – Jarvis

Station #3 is a three bay station with drive through capability for two of the bays. The station was built in 2004. The is a pumper truck, tanker, aerial, and rescue squad.



Apparatus Bays





SCBA Filling Station and Buker Gear Extractor



Meeting and Training Room and Officer Areas



Washrooms with Showers



Station Concerns:

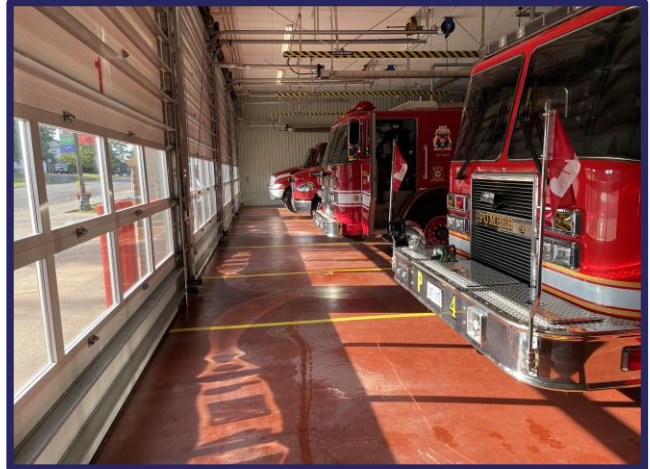
- No diesel exhaust extraction system
- Firefighting gear exposed to exhaust contamination
- Floor drains may not have oil separators in them

Station #4 – Cayuga

Station #4 is a dual fire station and EMS facility that is also the Headquarters for Fire and EMS. This facility was built 2014. This station has two pumper trucks, tanker, rescue, and water rescue equipment for response capabilities.



Apparatus Bays





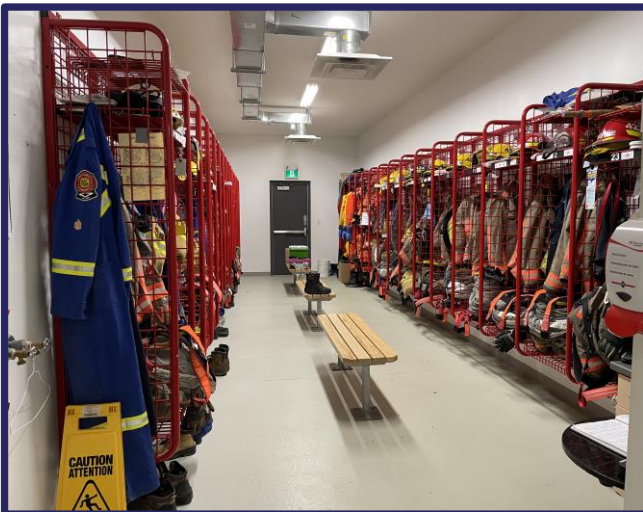
Training, Office and Kitchen Areas



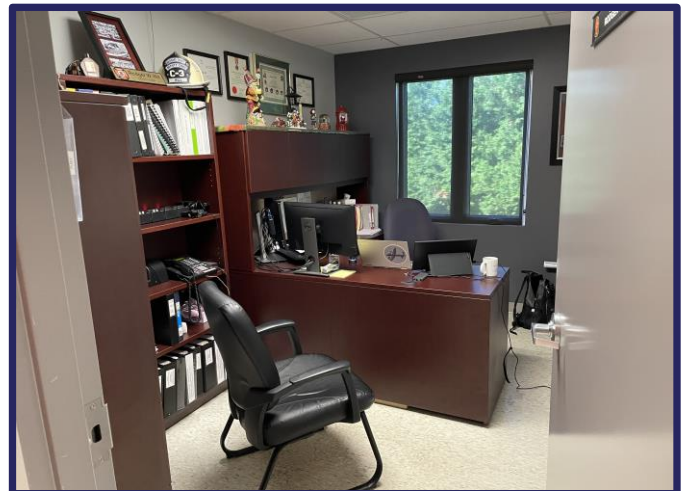
Washrooms and Shower Facilities



Gear Storage, Cleaning and SCBA Filling Unit



Administration Area



This station is well set up with diesel exhaust system, SCBA filling station, separate room for bunker gear, and washing facilities for any soiled/contaminated gear.

The only concern noted at this facility is around the administration area. This area is nearing capacity, with little to no room for expansion at this time (if more staff were hired).

Station #5 – Canfield

This is a two bay drive through station that was built in 2013. There is a pumper truck, tanker and rescue truck that respond from this station.



Apparatus Bays



Firefighter Gear Stored Separate Room



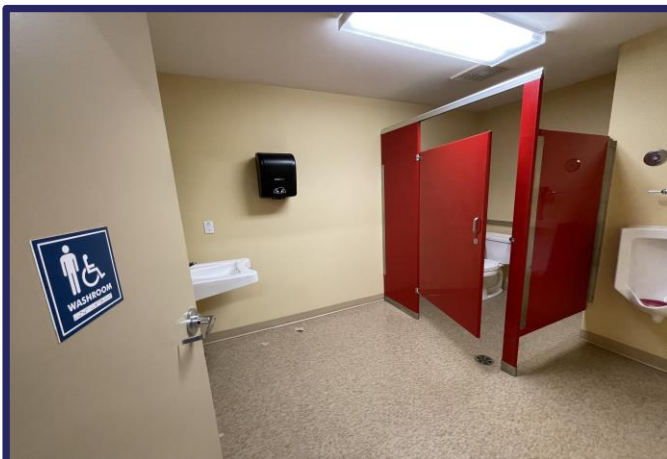
Office Set Up



Training Room and Kitchen Area



Washrooms – No Shower Facility



Station Concerns:

This is a relatively new fire station that is well set up; however, the following items have been noted as concerns.

- No diesel exhaust extraction system in place
- The washrooms do not have shower facilities.

Station #6 – Canborough

Station #6 is a two-bay station that does not have drive through capability. This station is a shared facility with the Canboro Community Centre. There is a pumper truck and tanker that respond from this station.



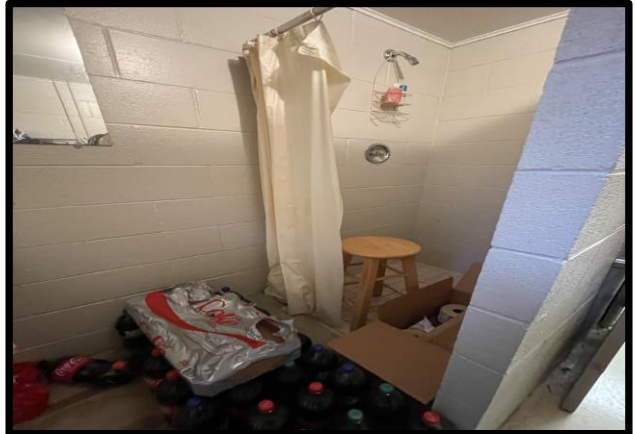
Apparatus Bays and Storage



Office and Kitchen Areas



Washroom, with Shower Facility – But Used for Storage (at time of tour)



Training/Meeting Room



Station Concerns:

- Lack of storage for equipment on apparatus floor
- There is no diesel exhaust removal system in the station
- Firefighting gear exposed to diesel exhaust contamination

Station #7 – Lowbanks

Station #7 is part of a joint facility, attached to the local community centre. This is a two bay station with partial drive through capability. There is pumper truck, tanker and rescue truck that respond from this station. The station was built in 2008.



Rear of Station



Apparatus Bays



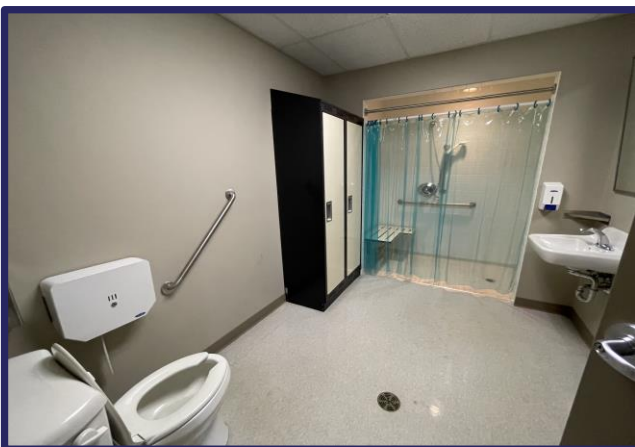
Firefighter Gear Stored by Trucks



Bunker Extractor



Washroom Facilities and Showers



Training and Meeting Room



Station Concerns:

- Firefighting gear exposed to exhaust contamination
- No diesel exhaust extraction system.
- During the station assessment it was noted to EMG that even though the Lowbanks station is well set up; it is in an area prone to flooding (on the roadway). There have actually been times when the firefighters have either had difficulties getting to the fire station, or not been able to access this station at all due to water levels on the roadway.
- As noted in the picture below, the station itself is on a hill and is not affected by the any flooding on the roadway.
 - Due to this operational concern, consideration should be given to the future relocation of this fire station to an area not affected by flooding.



Station #9 – Dunnville

Station #9 is a three bay station with partial drive through capabilities. There is a pumper truck, tanker, rescue truck and a aerial truck that respond out of this station. This station also has a boat and water rescue capabilities. The station was built in 1969.



Rear of Station with One Drive Through Bay



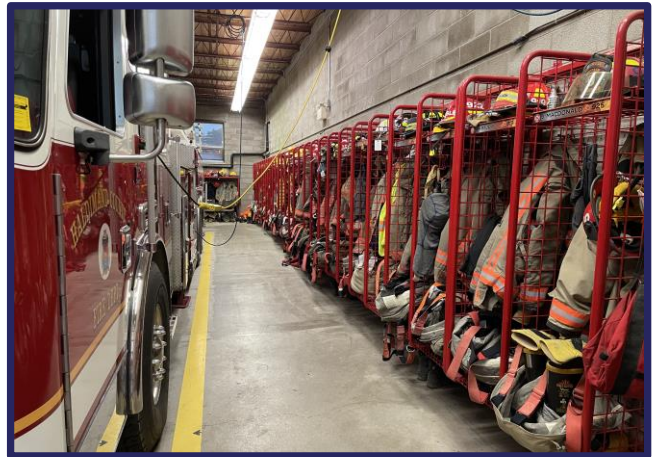
Apparatus Bays



Appartus Bays



Firefighters Gear by Trucks (Exhaust)



Gunker Gear Extractor and SCBA Filling Station



Training / Meeting Facilities



Washroom with Shower Facilities



Station Concerns:

- Lack of storage for equipment
- No diesel exhaust extractor system
- Firefighting gear exposed to exhaust contamination

Note: *These concerns will be addressed with the new station, which is planned to be initiated in 2027.*

Station #11 – South Haldimand

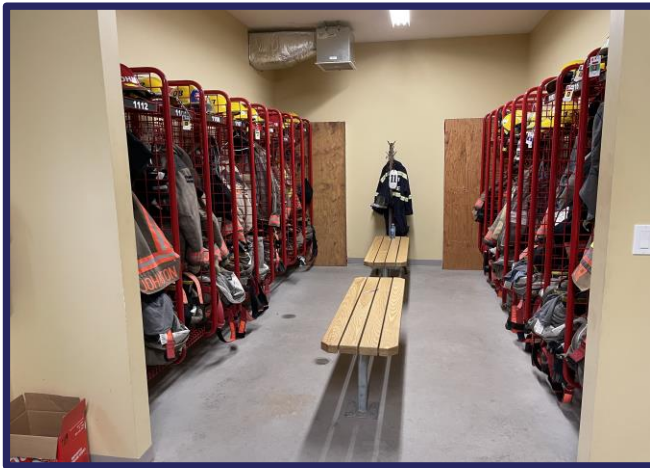
Station #11 is a two bay drive through station that was built in 2015. There is a pumper truck, a support truck, rescue truck, that respond from this station. There is also a boat for water rescue capability.



Apparatus Bays



Firefighter Gear in Separate Room



Kitchen Area



Office Area



Training Room



Washroom –No Shower



Station Concerns:

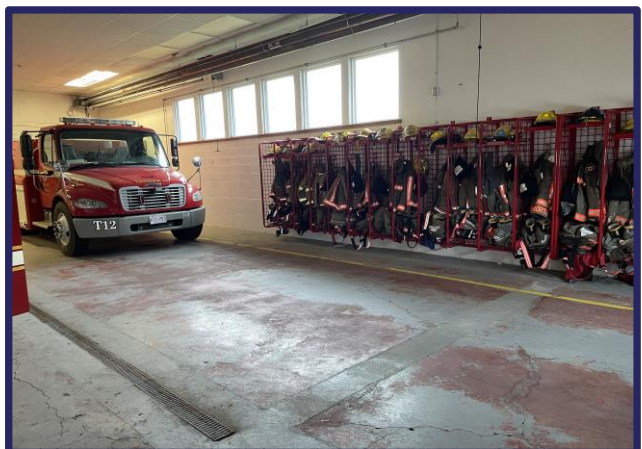
- No shower facilities
- No diesel exhaust system

Station #12 – Fisherville

Station #12, is a dual response facility with an ambulance responding from this location. This station is two bays with no drive through capability. It was built in 1967. There is a pumper truck and tanker that respond from this location.



Apparatus Bays



Meeting/Training Room



Kitchen



Office



Washroom with Shower



Station Concerns:

- No diesel exhaust system
- Firefighters gear exposed to vehicle exhaust contaminants.

Station #13 – Selkirk

Station #13 is a three bay station that does not have through capability, that was built in 1987. There is a pumper truck, tanker and rescue truck that respond from this facility.



Rear View of Station



Appratus Floor



Apparatus Bays



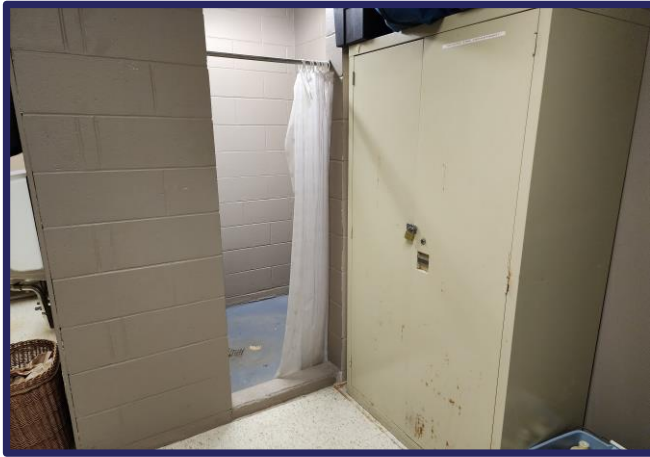
Meeting/Training Room



General Office View



Washroom (with shower)



Kitchen Area



Station Concerns:

- No diesel exhaust system
- Firefighters gear exposed to vehicle exhaust contaminates.

6.2 Fire Station Concerns

During the walk-through by EMG, it was evident (as can be seen in the supplied photos) that many of the Haldimand County fire stations are relatively new and in good shape, but some are nearing, or at maximum capacity for storage of vehicles and equipment. The following is a summary of concerns noted:

- The proximity of the firefighter's gear in relation to the vehicle exhaust. This could create an exhaust contamination issue. Firefighters' gear should be stored in a separate room away from any exhaust contamination.
- Some of the stations appear to be at maximum capacity for vehicles and equipment storage.
 - There was a notable lack of proper storage areas/facilities for the equipment. This creates a tripping/safety hazard to the staff.
- Washroom facilities for both male and female firefighters were also an issue at some of the stations and should be addressed. This can also be accomplished by making the washroom gender neutral.
 - The main concern is the lack of shower/wash up areas that need to be made available at all the stations. Firefighters must be able to decontaminate themselves from exposures to smoke, toxic gasses, chemicals, blood, and pathogens as soon as possible after a call and before going home.
- The Lowbanks station is well set up; however, it is in an area prone to seasonal flooding on the roadway. There have been times when the firefighters have either had difficulties accessing the station or not been able to access this station at all due to water levels on the roadway.
 - Consideration should be given to the future relocation of this fire station to an area not affected by flooding.

Note: Based on the OHSA, workers who may come in contact with hazardous chemicals are to be afforded proper washing and clean up facilities.

Space between vehicles must allow for safe and easy access between vehicles to reduce the possibility of persons becoming trapped between vehicles as they are being driven in and out of the fire station. For many of the fire stations space is at a premium, and some type of storage facility should be incorporated at many of the fire stations. Future stations should be built with this space requirement in mind.

6.2.1 Options Relating to Fire Station Future Locations:

During the review of response data and station facilities there may be an opportunity to reduce the number of fire stations without affecting the overall response capabilities of the HCFD. Again, it should be emphasized that a third-party feasibility study should be conducted.

As noted in Figure #10 – Call Cluster Map, the main bulk of calls are in the Station 1 – Caledonia, Station 2 – Hagersville, Station 3 – Jarvis, Station 4 – Cayuga, and Station 9 – Dunnville areas. This is

not to say that the other areas are not important and do not need a timely response. But, as displayed in Figure #11, there is a noticeable amount of overlapping of coverage by the 11 stations.

As such, EMG will present two options with response mapping to demonstrate that a reduction of one or two of the less busy fire stations will still provide a proper 10-minute drive time response coverage.

FIGURE #11: CALL CLUSTER MAP (CULMATION OF CALLS 2019 – 2022)

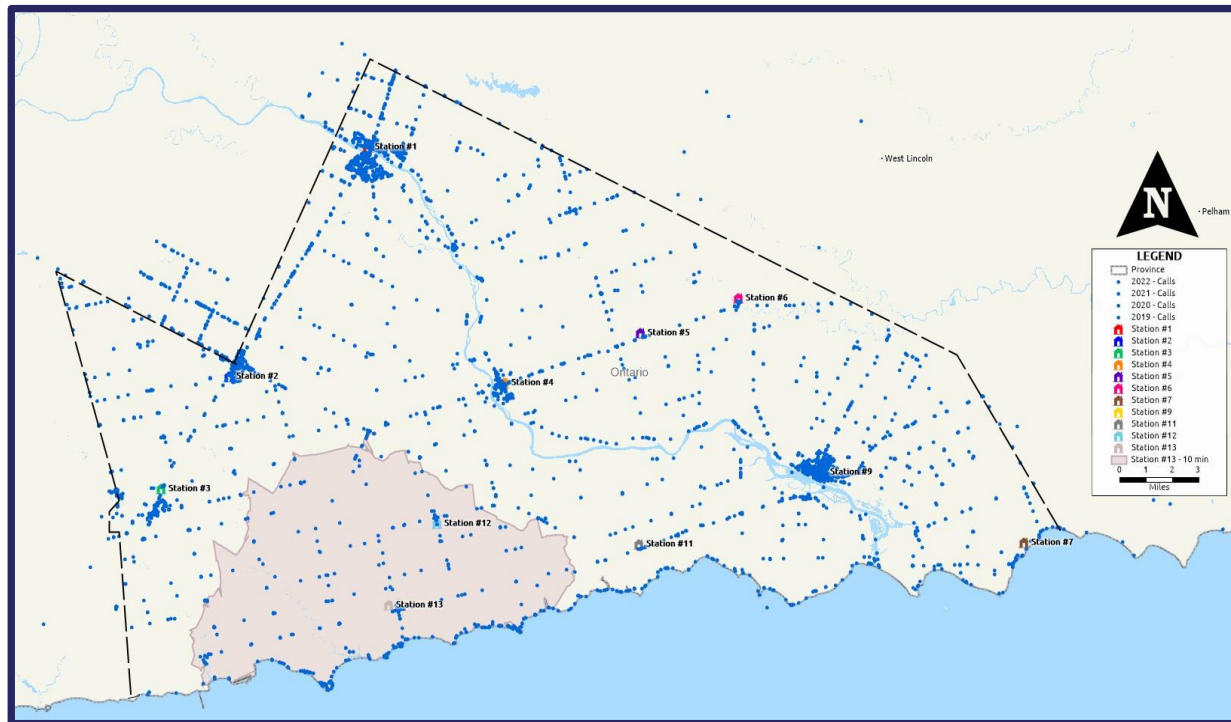
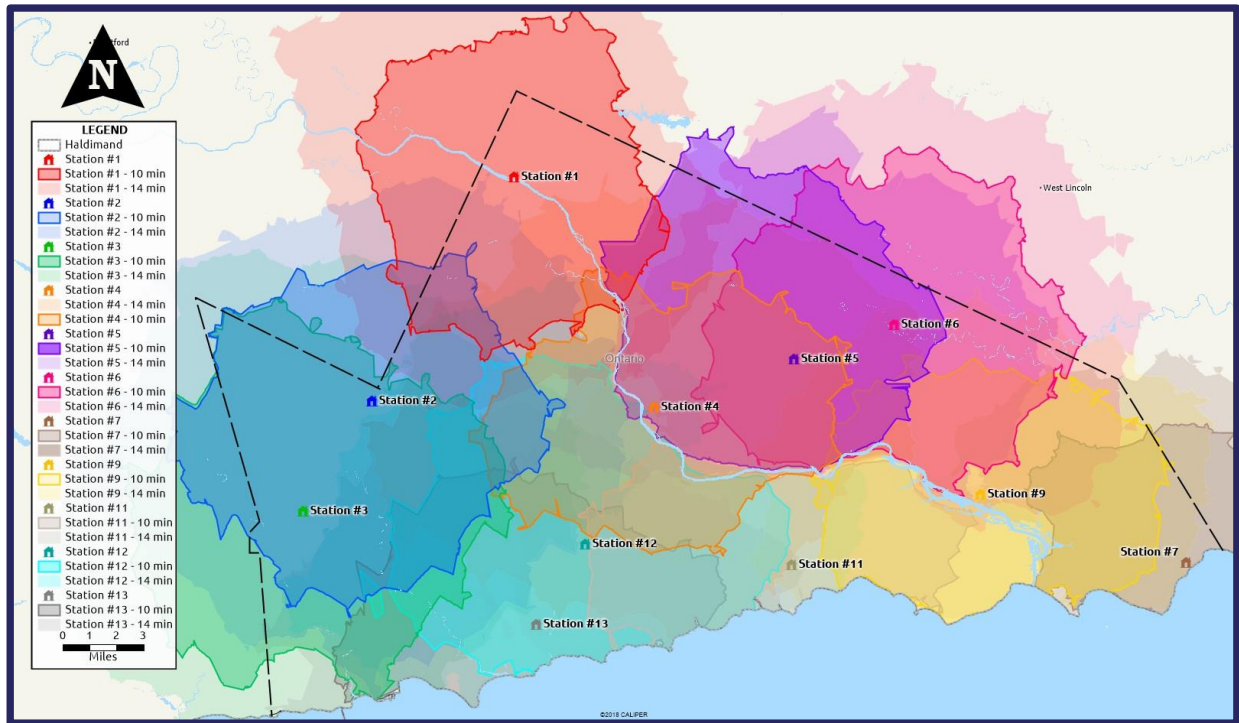


FIGURE #12: COVERAGE MAP WITH CALL CLUSTER



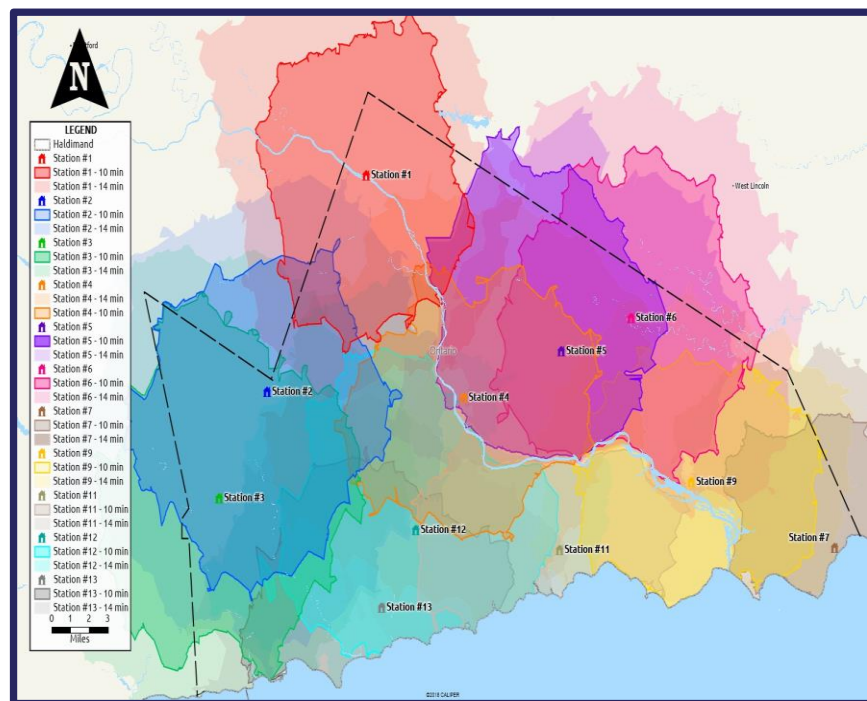
6.3 Future Station Options for Consideration

The following maps outline the present 11 station coverage model and how the response coverage looks with a 9-station model. As can be noted, there is still overlapping coverage in many of the areas, and approximately 90% of the community is covered. The 10% void is in the north central part of County that is currently covered by station 5 canfield. This area would still be covered but would fall slightly outside of the 10-minute coverage by approximately one minute.

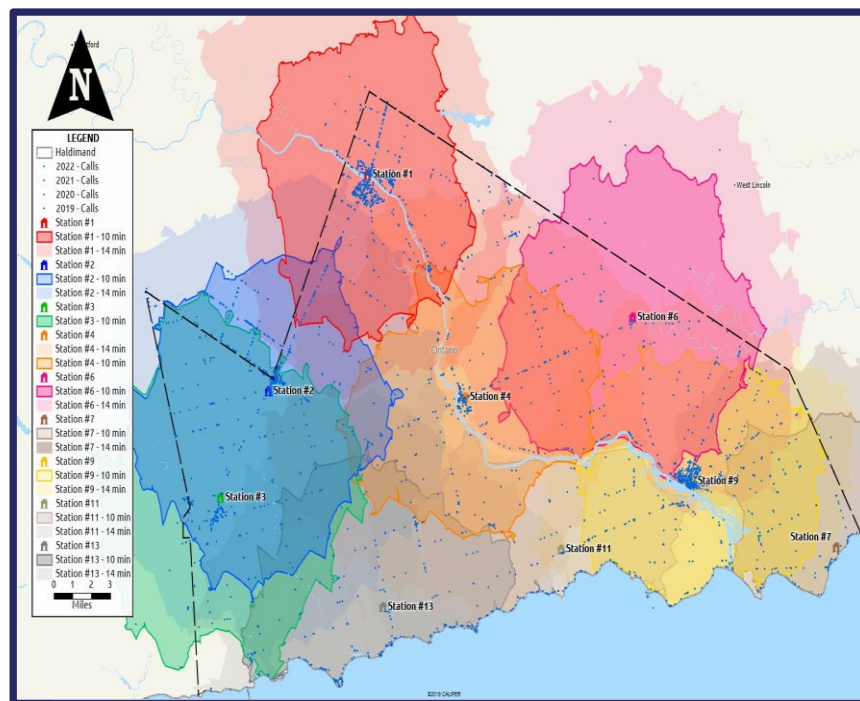
This 9-sation model would see the closing of station #5 Canfield and station #12 Fisherville.

FIGURE #13A: FIRE STATION OPTION #1 – 9-STATION ARRANGEMENT

Present Fire Station Set Up – 11 Stations



Potential 9 Station Set Up



This 9-station setup still offers good coverage to the community based on the noted locations. This model would still support full use of the volunteer firefighters while, at the same time, reduce operational and equipment related costs. By reducing the number of fire stations, there would be a savings in relation to:

- Station maintenance
- The cost of replacement vehicles for those stations – a new pumper truck can cost as much as \$1 million.

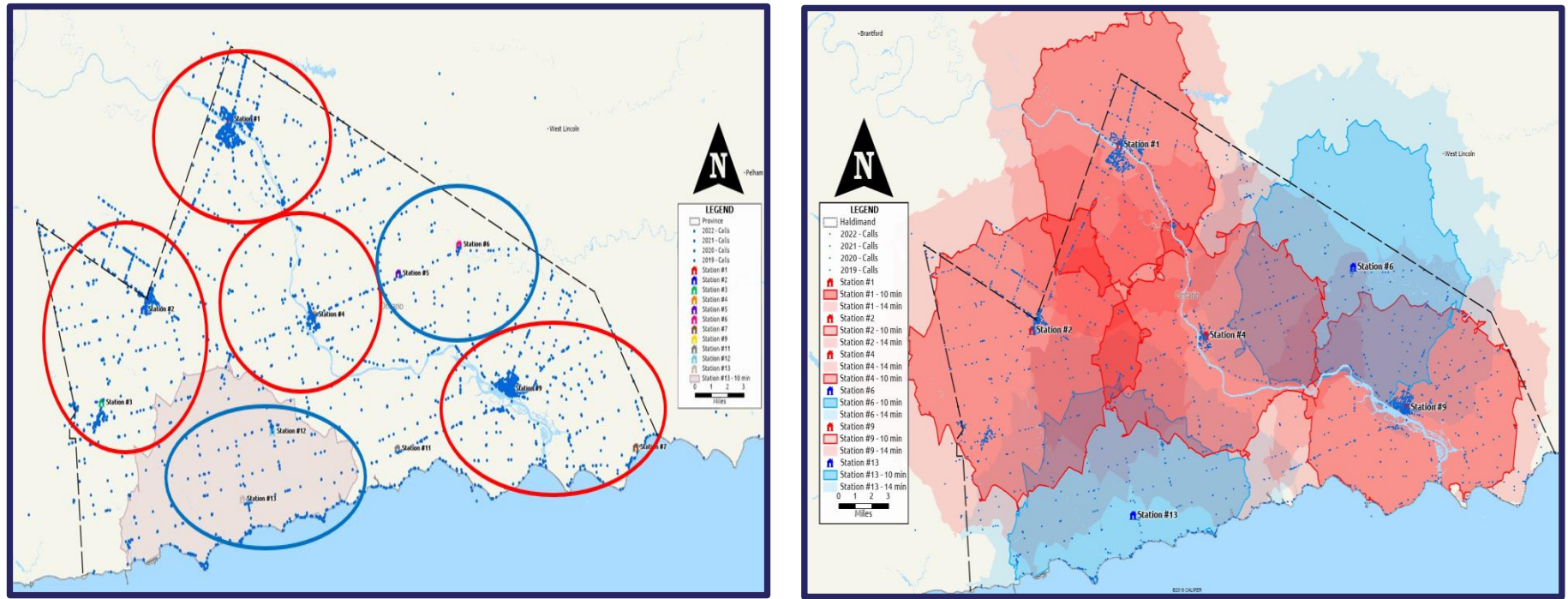
By utilizing the firefighters from the two closed stations (#5 and #12), this may help to address recruitment and need of volunteer firefighters due to the potential to redeploy them to nearby stations.

Figure #13b: Fire Station **Option #2** – Six Fire stations with a Combination of Career and Volunteer Firefighters – Long-Term Option

With the anticipated growth of the County over the next 10 – 20 years; call volumes are expected to increase to a point where a career contingent for the HCFD will need to be considered and implemented in a controlled and affordable manner. As such, a second long-term option for consideration is the implementation of a full-time contingent at Stations 1-Caledonia, 2-Hagersville, 4-Cayuga and 9-Dunnville, with stations 6-Canborough and 13-Selkirk kept as volunteer. This 6-station model offers good coverage in the areas where the bulk of the Fire Department responses occur and could be implemented over the next 10 years (and more), as population growth and call volumes dictate.

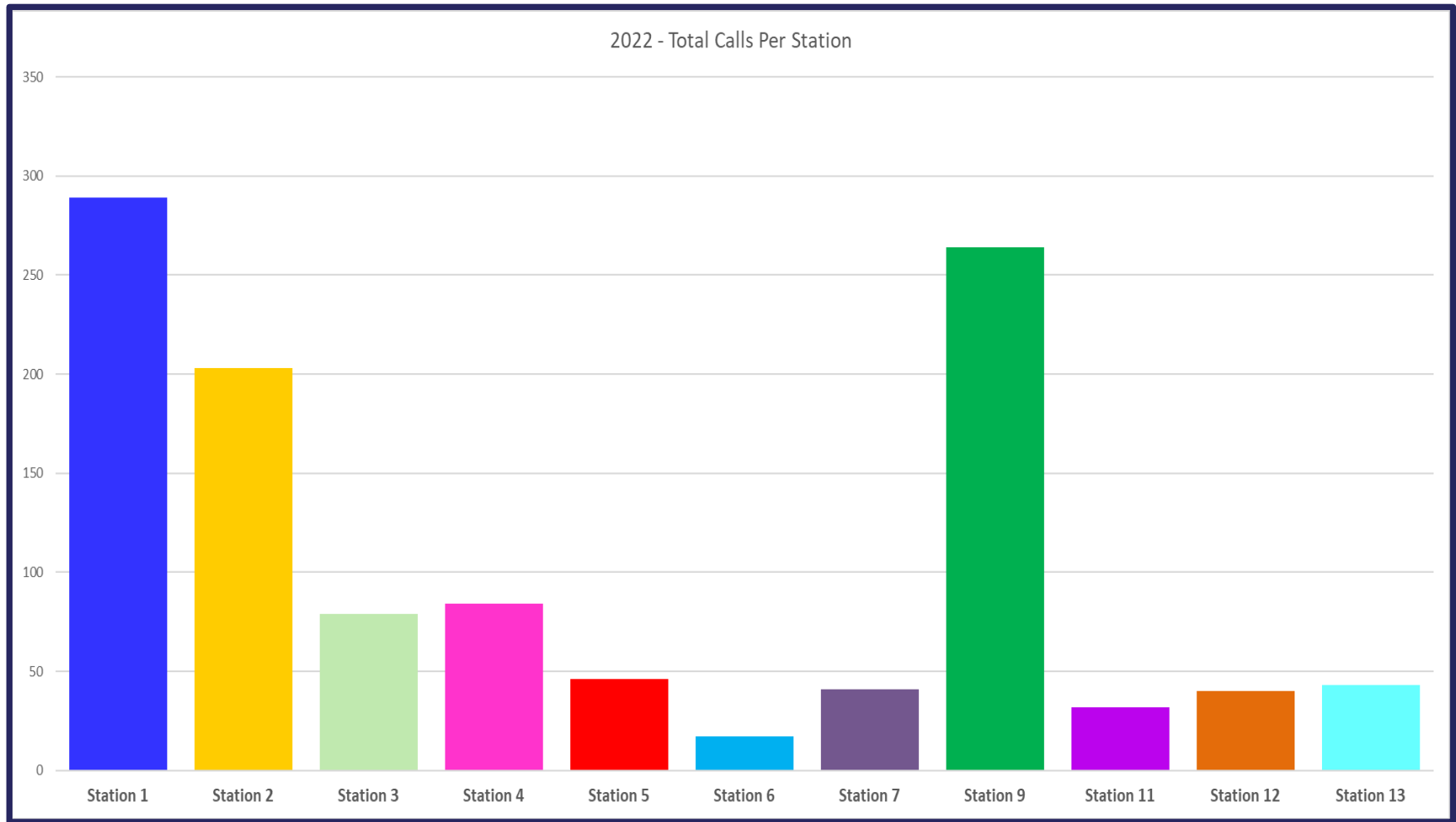
The circled areas on the map on the left identifies the areas of the County with the larger call volumes. Along with trying to achieve the greatest level of coverage in a combination (career/volunteer) set up. EMG is presenting the following option for consideration.

FIGURE #13B: FIRE STATION OPTION #2 – SIX FIRE STATIONS WITH A COMBINATION OF CAREER AND VOLUNTEER FIREFIGHTERS (LONG-TERM OPTION)



Note: The response zones in the map on the right have been colour-coded to show career stations in red and volunteer stations in blue.

The following chart has been included to show the 2022 calls per station to confirm what stations do in fact respond to most calls.



The stations to be considered for closing are: #3-Jarvis, #5-Canfield, #7-Lowbanks, #11- South Haldimand, and #12-Fisherville.

Based on this information, it is recommended that the Fire Chief continue to monitor call volumes and response times. As the more populated areas increase in call volumes, an assessment and report should be presented to Council as to the need for a specific station to be upgraded to a full-time (career) facility.

This upgrading to a composite fire department that consists of both full-time and volunteer fire stations does not have to mean an immediate move to 24/7, 365 days a year coverage. Many fire departments that move to a full-time contingent do so in stages. For example, through an ongoing response evaluation by the Fire Chief, the data should be able to identify what times of the day, and even days of the week that are the response challenges. By identifying this, a recommendation may be to staff a station Monday to Friday, from 8am to 5pm; with the volunteers providing coverage in the evenings and on weekends. Of course, response by the volunteers even during the times when full-time staff are on duty is still a very practical option.

Summary:

In **Option #1**, the closing of two stations would equate to a reduction in the cost of fire equipment and fire trucks. By even reducing the fleet by one or two trucks, this could equate to a future savings of almost one million dollars (for future truck purchases). There would also be savings related to station upkeep and operating costs. The funds identified for each fire station upkeep may not seem like a large savings but over time the fact that a fire truck (or two) may be reduced from the rolling stock, and annual maintenance costs for two stations could either be reduced or (even better) redirected back into the fire department's budget for future training and equipment needs would be a benefit.

In this option, the HCFD would continue to exist as a fully volunteer response component. And the volunteers from the two closed stations would still be utilized by being assigned to the next nearest fire station.

In **Option #2**, is the creation of a combination of full-time and volunteer stations in line with the level of expansion in the highlighted communities. This option would be a timed implementation that will take 10 to 15 years (or more) and would coincide with the growth and call volume increases, and recommendations by the Fire Chief.

***Note:** The full-time/career stations would also have the option of being supported by a volunteer contingent.*

6.4 Feasibility Study

There is a great deal of information to be considered with the options noted here. Before any decision is made, an updated feasibility study by the Works Department and/or third party is recommended to understand what will be required to bring any of the noted stations (that will be kept) up to a state that will allow them to continue to serve the community for the next 10 to 20 years. As noted by the Fire Chief, a station condition assessment was conducted but based on the timing of moving to a full-time model, an updated study may be required. This study could be the deciding factor in what

stations may in fact need to be rebuilt or even relocated. The feasibility study would need to fully assess costing, coverage and staffing considerations, along with a timeline for implementation.

For **Option #1** – this presents the possible closing of two stations. Whereas **Option #2** –would require the greatest amount of investment due to the creation of a full-time staffing component and possible station upgrades for the daytime and/or the move to accommodate a 24/7 level of coverage.

Before presenting to Council for approval, a feasibility study should be conducted.

6.5 Type of Buildings and Options for Fire Stations

Traditionally, fire stations have been stand-alone structures. Municipalities like Haldimand County have been shifting to integrating services into shared-use buildings with emergency service response stations being built into community centres, libraries, public works buildings, etc. HCFD has taken advantage of joint facilities, in which they have built some of their fire stations into either a community centre, or even with the ambulance service. This partnership with other community stakeholders is a cost-effective measure in both the use of an existing and new facilities but also, sensible use of available lands.

It is common across Canada to have different emergency services co-located; this has included fire and police, fire, and paramedics, or all three in the same building. These stations normally have separate quarters within the same building, with separate entrances and facilities. This permits each service to operate independently while taking advantage of the efficiencies of a single structure.

As technology, community demographics, and operational requirements evolve, maintaining an ability to be flexible in the station design, construction, and location will benefit the community in the long-term. Leasing of a facility reduces the initial capital outlay, placing building maintenance responsibility on the landlord and allows the County the flexibility to move, should there be a change in community development.

The following is the City of Vancouver Fire Station #5 that has been integrated into a community housing project run by the YWCA. The two main floors make up the fire station with the upper four floors of the six-storey building providing 31 affordable housing units for single mothers and their children.

While the fire station was funded by the City, the YWCA housing portion of the building received funding from the municipal, provincial, and federal governments as well as the YWCA who launched a capital fundraising campaign. Having the two services integrated provides a sense of safety and security for the single mothers and their children.



In Calgary, a unique fire station exists that includes a two-storey podium building with two separate high-rise towers. The 11-storey east tower contains 88 affordable housing units with the 18-storey west tower containing 132 market housing units. The fire hall is at the base of the building, composing two-storeys. This is a public/ private partnership.¹⁰

¹⁰ "838 – 4th Avenue SW," ITC Construction Group, accessed January 24, 2022, <https://www.itc-group.com/project/solaire-louise-station>

The City of Barrie has leased the end unit of a commercial strip mall as a fire station (*pictured below*). The unit was constructed by the landlord to meet the city's requirements.



EXTREME fire stations are a new concept that is a Canadian built product out of Lethbridge, Alberta. It is a modular-based building, built to seismic and building code standards, using high efficiency, energy code compliant HVAC systems and fire suppression systems; these are standard on EXTREME stations.

The positive aspects about EXTREME fire stations are that they are custom built at a factory and transported to the site where they are quickly placed onsite and ready for occupancy.

Extreme Fire Station Assembly (On-Site)



A typical fire station has a life expectancy of approximately 50 years before the cost/benefit ratio starts to work against the municipality in terms of maintenance, basic function, and design. The EXTREME fire stations have, the ability to meet that life cycle because they are made from steel and aluminum and additional modules can also be added if the station needs to expand its footprint.

Extreme Fire Station (Multi-Bay Example)



The West Conrad station is an example of the diversity of EXTREME fire station designs and how they can be designed and expanded to meet the customer's needs.

A partnership with non-profit organizations, EMS, or leasing of available space in a new fire station are options as municipalities become more innovative in how they incorporate a fire station into the community. This model may not work or be a fit in every community, but these options are worth exploring to decrease costs while simultaneously increasing the fire department's response capacity.

Calgary Fire Department Waldon Station



The Calgary Waldon station is an example of the EXTREME fire station, one-bay design. This design can be expanded to meet the customer's needs.

6.6 Fire Apparatus - New and Replacement Schedules

Reliability of fire apparatus is critical to the successful operation of a fire service. Over the long-term, delaying the replacement of a vehicle is inadvisable as it will add to the overall maintenance costs of the apparatus and can influence insurance costs based on the emergency service's FUS rating.

The HCFD is well-equipped with pumper trucks, tankers and support vehicles required for primary response to calls within the County. All the vehicles have been identified in the department's capital replacement plan.

6.6.1 Fire Underwriters Survey – Vehicle Replacement Recommendations

When assessing an emergency service's ability to respond and meet the needs of the community, the FUS considers the age of a fire truck as one of its guidelines.

The medium sized cities or communities (outlined in blue) is the recommendation for vehicle replacement for a municipality the size of Haldimand County. This allows for up to a 20-year replacement cycle, in which the fire vehicle can be utilized as 2nd Line response status. It is, however, recommended that all First Line units be replaced by a new or younger unit when it reaches 15 years of age.

TABLE #4: FUS VEHICLE REPLACEMENT RECOMMENDATIONS¹¹

Apparatus Age	Major Cities ³	Medium Sized Cities ⁴ or Communities Where Risk is Significant	Small Communities ⁵ and Rural Centres
0 – 15 Years	First Line Duty	First Line Duty	First Line Duty
16 – 20 Years	Reserve	2 nd Line Duty	First Line Duty
20 – 25 Years ¹	No Credit in Grading	No Credit in Grading Or Reserve ²	No Credit in Grading Or 2 nd Line Duty ²
26 – 29 Years ¹	No Credit in Grading	No Credit in Grading Or Reserve ²	No Credit in Grading Or Reserve ²
30 Years +	No Credit in Grading	No Credit in Grading	No Credit in Grading

¹¹ Technical Bulletin, Fire Underwriters Survey™, A Service To Insurers And Municipalities, Insurance Grading Recognition Of Used Or Rebuilt Fire Apparatus, accessed January 31, 2022, file:///C:/Users/emergencylt/Downloads/FUS-technicalbulletin-insurancegradingrecognitionofusedorrebuilt%20(1).pdf

¹ All listed fire apparatus 20 years of age and older are required to be service tested by a recognized testing agency on an annual basis to be eligible for grading recognition (NFPA 1071).

² Exceptions to age status may be considered in small to medium sized communities and rural centre conditionally, when apparatus condition is acceptable, and apparatus successfully passes required testing.

³ Major cities are defined as an incorporated or unincorporated community that has:

- a populated area (or multiple areas) with a density of at least 400 people per square kilometre; AND
- a total population of 100,000 or greater.

⁴ Medium Communities are defined as an incorporated or unincorporated community that has:

- a populated area (or multiple areas) with a density of at least 200 people per square kilometre; AND
- a total population of 1,000 or greater.

⁵ Small Communities are defined as an incorporated or unincorporated community that has:

- no populated areas with densities that exceed 200 people per square kilometre; AND
- does not have a total population in excess of 1,000.

FUS definition of First Line Duty, 2nd Line Duty, and Reserve is:

- 1st line is the first fire truck utilized for response at the fire station.
- 2nd line is the next truck to be used if the 1st line unit is tied up at a call, and
- Reserve is the vehicle kept in the fleet to be put into service if a 1st line or 2nd line vehicle is out of service.

The FUS is reviewed by insurance companies. Provided that the Emergency services adheres to the recommended replacement timelines through an approved capital replacement schedule, the department will retain its fire rating for vehicle replacement. By ensuring that the vehicles are being replaced on a regular schedule, Haldimand County is also demonstrating due diligence towards ensuring a dependable response fleet for the Emergency services and the community it serves through its vehicle replacement schedule.

6.6.2 NFPA – Vehicle Replacement Recommendations

The NFPA 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus* also supports a regular replacement schedule of fire vehicles. This standard includes guidance on retirement criteria for fire apparatus. NFPA 1911 recommends that all front-run vehicles are replaced on a 15 to 20-year cycle, depending on the community size.

For emergency services that are considering refurbishing their vehicles to extend the in-service life, reference can be made to the NFPA 1912, *Standard for Apparatus Refurbishing*. It should be noted

that although the FUS do take refurbishment of vehicles into consideration, no credit rating is assigned to vehicles over 30 years of age.

During the station and equipment review, it was noted that the vehicles and small engines (pumps, generators, etc.) are on a standard replacement cycle and that maintenance and repair work is addressed as quickly as possible by Haldimand County or other recommended facilities.

The HCFD does not follow the FUS recommended replacement schedule for fire apparatus. However, to HCFD's credit, their fire apparatuses are in excellent condition. Fleet Services has developed a replacement schedule for each type of apparatus that is close to meeting FUS requirements. Pumpers get replaced once they reach 17 years of service, with tankers, rescues, and aerials at 20 years.

6.7 Maintenance

HCFD does not have its own mechanical division all work is handled by the County's maintenance yard. The repair shop does not have a certified Emergency Vehicle Technician (EVT). As such, general vehicle repairs can be accomplished at the maintenance facility, which is a cost savings because the vehicles do not always need to be sent out to a 3rd party shop. However, by not having an in-house EVT, all the specialized work must be completed by a 3rd party.

6.7.1 Vehicle Technology

The HCFD should endeavour to advance the technological perspective on the fire apparatus through the acquisition of tablets. These units are data enabled and will permit the responding crews to acquire information about the incident they are responding to directly from the Communications Centre including mapping, responding apparatus, pre-incident plans, hydrant locations and access to the internet. Some data terminals can open the overhead doors of the fire stations rather than a small remote control that can become lost. The County's Information Technology Division would be responsible for supporting the operating systems.

The tablets will have the capability to provide any pre-incident plans that are completed for a particular location. These plans will provide information such as a footprint of the structure, man and overhead doors, electrical panels, gas valves, hazardous materials storage area, sprinkler and fire hose connections, fire hose cabinets, etc. The Incident Command will use this information to direct their crews to specific areas of a structure to perform an assigned task and improve the situational data.

6.7.2 Bunker Gear

Every year, firefighters in ever-increasing numbers are being diagnosed with cancer. A contributing factor to their illness has been proven to be the contaminants that adhere to the structural firefighting gear during fire fighting operations. After a fire, the structural firefighting gear should be packaged and sent for cleaning to reduce this risk. All the HCFD fire stations have a commercial extraction washing machine made for this type of cleaning.

While structural firefighting gear is being cleaned, the firefighter requires a replacement set. This is achieved by the fact that each firefighter will soon be issued a second set of gear, so they do not go

without clean gear to wear. Ensuring that the cleaning of gear is a high priority after fires and that firefighters have access, to properly fitting bunker gear during the cleaning process, will assist the department in meeting its decontamination and hygiene program.

When used for interior structural firefighting, bunker gear has a life span of 10 years as stated in NFPA 1851, *Standard on Selection, Care and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*. HCFD is following this replacement standard or if the gear is compromised in any way.

Further to contaminating the bunker gear, toxins also contaminate the firefighter's uniform/personal clothing. Each firefighter should have a clean uniform/personal clothing available to wear so that the uniform/personal clothing they wore into a fire is cleaned and the contaminants not taken home with them, where others could become exposed to the toxins. The risk of toxin exposure is not just to firefighting personnel, full-time or volunteer, but to their at-home families as well.

HCFD should ensure that SOGs pertaining to the cleaning, inspection of and maintenance of bunker gear is current and meet manufacturers requirements. Special attention should be taken when reinstalling the drag rescue device (DRD), which may also require an SOG to provide guidance on the procedure.

6.8 New Technologies

Technology is ever evolving within the fire service, with new pieces of equipment being added to the resources used by an incident commander. One such technology which has proven to be a valuable tool is the use of drones (Transport Canada refers to these as Remotely Piloted Aircraft Systems (RPAS). Police services have been using them for some time to locate missing persons or document accidents and crime scenes.

The use of drones in the fire service is a growing trend as a multi-purpose tool that can assist with large scale assessments of fireground and hazardous material incidents, enhance search and rescue functions, and be used in pre-incident planning.

Drones can cover a lot of ground thus allowing valuable fire services personnel to be utilized elsewhere. They have proven beneficial for hazardous materials incidents and large-scale emergencies as the drone can be quickly deployed and give the Incident Commander a live view of the incident. The reduction of risk to firefighting personnel is a significant benefit of drone technology along with the live view capabilities that provides invaluable information to the Incident Commander.

Drone pilots must follow the Canadian Aviation Regulations (CARs) Part IX-Remotely Piloted Aircraft Systems that contain the rules for drones up to 25 kilograms. Advanced operations include flying in a controlled airspace, flying over bystanders, or flying within 30 meters of bystanders.

New technologies are being developed each year to protect firefighters; these include the use of robotics to fight fires, which are being actively used in Europe and Asia.

New SCBA have built in telemetry systems that, like some portable radios, identify the location of the firefighter. New technology SCBAs can transmit GPS data, the amount of air in the SCBA cylinder, monitor the heart rate, level of exertion the firefighter is being exposed to, and body temperature.

As the technology progresses it is important to monitor the benefits and opportunities to integrate these devices into the fire service.

6.9 Hydrants

Haldimand County supplies water to some of the populated areas and has installed fire hydrants, which are tested to an unidentified schedule to ensure a level of operability.

All fire hydrants are inspected and tested as noted within, NFPA 24, *Standard for the Installation of Private Fire Service Mains Their Appurtenances*, along with NFPA 291, *Recommended Practises of Fire Flow Testing and Marking of Hydrants*.

When a fire hydrant is out of service, repairs should be completed in an expedited manner, notifying the fire department of such breakages and the anticipated time to complete the required repairs.

During winter months some hydrants will have markers installed beside for ease of location amongst snowbanks. It would aid firefighters year-round to locate a hydrant at night with reflectors being installed on the 65mm ports and be colour coded to the hydrant's flow rate.

Section #6 - Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
17	Recommendations noted relate to: - Removal of firefighting gear from apparatus floor to reduce vehicle exhaust contamination. - Upgrading of washrooms to include proper shower/decontamination facilities. - Installation of vehicle exhaust systems to reduce exposure to diesel exhaust by the firefighters.	Full station assessment is required before full costing can be determined	Short-term (1-3 years) ongoing	Facility upgrades are necessary to meet the needs of the firefighters.	Each station's concerns are within the section. Some of these will be addressed in two fire stations (Station #1 and Station #9) that are scheduled to be new builds.
18	Council to consider in consultation with the Fire Chief, a feasibility study of the two options presented in relation to: Option #1 – closing of two fire stations. Option #2 – creation of a new six fire station model. And that a full feasibility study be conducted by either the Director of the Works Department or through a third party.	Depending on Option chosen and Feasibility Study	Long-term (6-10 years) or longer dependent on option	The options noted in the master plan are intended to be more efficient with limited resources, while at the same time ensuring a strong level of coverage for the community.	This recommendation supports the need for a third-party consulting group to work with the HCFD on this feasibility study.

Rec #	Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
19	Greater utilization of the tablets to incorporate a pre-incident planning program, available on each responding fire truck.	Staff time	Short-term (1-3 years)	Utilizing technology in the record keeping and information availability allows quicker access, along with ability to better collate information.	No additional comments.

SECTION

7



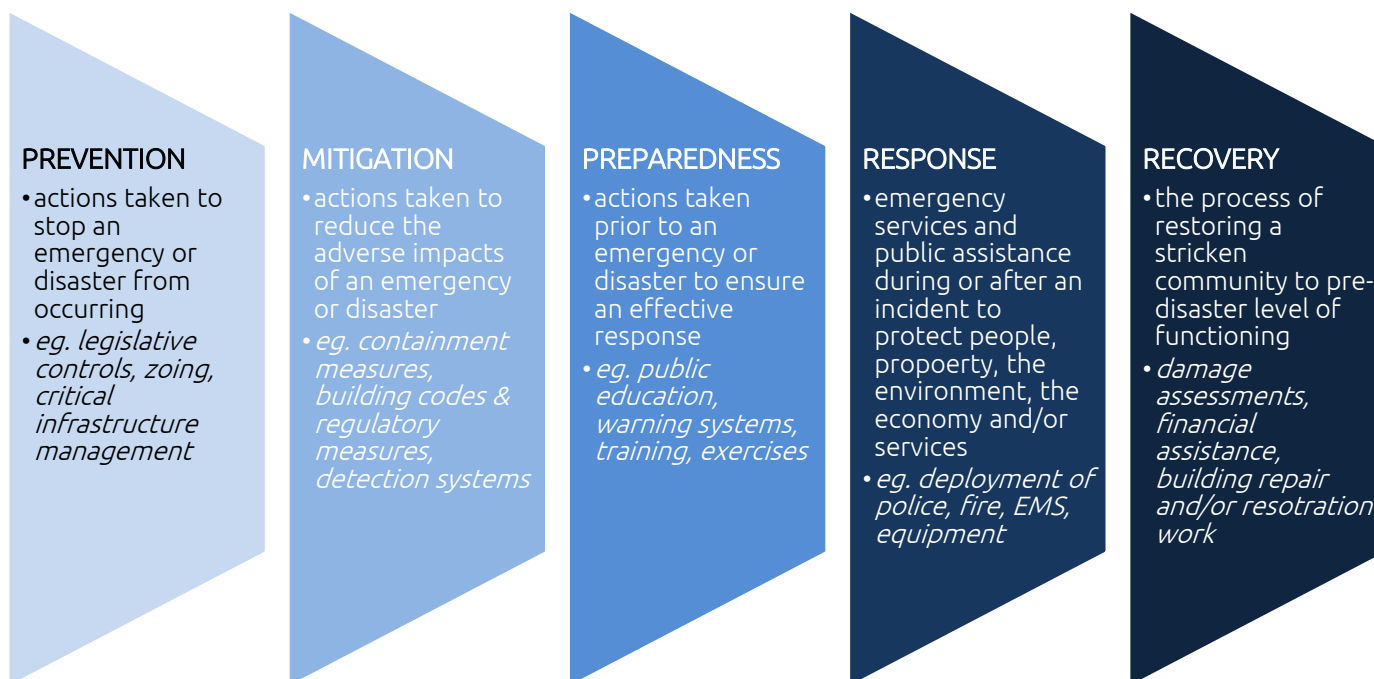
Emergency Management

SECTION 7: EMERGENCY MANAGEMENT

7.1 Emergency Management Program Overview

Emergency management and its incident management applications are strongly related to the fire service and its incident command systems. Emergency management is mandated within the Emergency Management and Civil Protection Act (EMCPA) and the supporting Regulation 380/04. The realm of emergency management has broadened since the inception of this act. Municipalities are expected to prepare for a variety of disasters on all scales, including but not limited to weather related events, health emergencies, cybersecurity, civil disorder, and infrastructure failure.

Emergency management is centered on the *Five Components of Comprehensive Emergency Management (CEM)*. Comprehensive Emergency Management is an all-encompassing risk-based approach to emergency management that includes prevention, mitigation, preparedness, response, and recovery.



Understanding the potential risks for a community comes from completing a Hazard Identification and Risk Assessment (as detailed in the *EMCPA*). The legislation mandates that every County must have certain criteria pertaining to emergency management. Annual submissions are required to the province to meet the eleven compliance criteria.

The *EMCPA* establishes eleven criteria that a County must have to meet annual compliance. Figure #14 lists these items in three general areas: Positions, Programs and Plan Management. Positions include the four compliance items focused on having properly trained and qualified people in specific positions. Programs list the three core compliance items that an emergency management program is

built upon. Plan Management includes the remaining five items that serve to support and strengthen an emergency management program.

FIGURE #14: EMCPA COMPLIANCE CRITERIA



Municipalities are encouraged to create Continuity of Operations Plans (COOP), also called Business Continuity Plans (BCP). A COOP/BCP is a plan developed and maintained to direct an organization's internal response to an emergency. These are plans that allow divisions or departments within the County to maintain operations during an emergency. A strong emergency plan will include a set of COOPs/BCPs that are routinely reviewed with the plan.

7.1.1 Current State

In review of the Haldimand County Emergency Management Program, they presented a very detailed and thorough plan. The plan integrates Incident Management System (IMS) terminology, positions, and concepts. This keeps Haldimand compliant with the requirements set out in the *EMCPA*.

The plan identifies all required positions and committees and includes alternates for the positions. Recently Haldimand County has experienced significant staffing turnovers. This has created a gap in integrating new staff into their primary or alternate positions within the emergency plan. One of the new staffing positions recently filled is the role of Emergency Management Coordinator. Haldimand County expects to address this issue as this position is filled and acclimatizes to the role. It is

recommended that Haldimand County and the Emergency Management Coordinator work to identify and address issues created by short staffing and/or staff turnover within the emergency management plan.

Training is delivered within the IMS curriculum. It was reported to EMG staff that some staff are trained to either IMS 100, 200, or 300. Access to training post-pandemic should create more opportunities for HCFD and the Haldimand County Emergency Management teams to update and/or improve their training and education. This also was identified as an issue associated with the staffing turnover. New training delivery models are now available in the provincial emergency management curriculum. It is recommended that Haldimand update their emergency management training plan to ensure that existing and new staff are current with their required training as per their position within the plan.

Of the facilities listed within the emergency plan, one reception/evacuation centre and two reception centres are identified within. The Red Cross has identified specific criteria pertaining to evacuation centres and reception centres that they request Haldimand County to address. It was communicated to EMG that these items are currently being remedied. Both of these facilities are compliant with the *Accessibility for Ontarians with Disabilities Act (AODA)*.

The emergency plan identifies a primary and secondary Emergency Operation Centre (EOC). Both the primary and alternate EOC locations have functioning services, including automatic generators and reliable internet. EOC operations are detailed within the Emergency Plan, including specific plans on managing the sites. It is suggested that in the annual review of the emergency plan, both EOC locations are reviewed for technological and preparedness currency. As the emergency management field broadens, so do opportunities to improve the functionality of EOC site services.

Haldimand County regularly meets with neighbouring municipalities and stakeholders. This relationship ensures continuity and communication during an emergency with bordering municipalities, regional partners, and other included stakeholders (i.e., First Nations). Identifying possible partnerships and collaborative initiatives can benefit stakeholders. This may include automatic aid agreements, shared services and/or economy of scale partnerships, and bulk purchasing agreements.

As Haldimand County returns to pre-pandemic levels of emergency management, and the addition of an Emergency Management Coordinator, regular program oversight can resume. In communication with EMG, it was stated that the coordinator will update the position alternate list and update the current volunteer management process to incorporate into the plan. The last real time exercise was in 2013. A return to training exercises and tabletop scenarios should be prioritized by the new Coordinator.

Overall, the Haldimand County Emergency Management Program is well established, with a comprehensive plan. Continued work to maintain and enhance this program is expected and encouraged. Haldimand County would benefit from strengthening its core functions, scheduled reviews to identify and address issues, and based on its size a focus on development and succession planning within its positions.

7.1.2 Emergency Planning Training and Exercises

Emergency planning and IMS are skills that need to be used regularly. Several training options as noted below, can be utilized to plan, and exercise in IMS and the community's emergency plan activation.

EOC Activation: Planning for a practice activation of the primary and secondary EOC keeps staff orientated to their roles and all staff members that are expected to have a role in the EOC should participate in these practice sessions.

Discussion-Based Exercise: In Discussion-Based Exercises, the primary intent is to have dialogue regarding the emergency plan, procedures, bylaws, and any policies that could impact an emergency. The discussion sessions are low key, low pressure and a great tool for familiarization of plans, procedures, bylaws, and policies. The secondary intent of discussion-based exercises is to build confidence through familiarization amongst team players in the application of the plan. These discussion-based exercises are great tools to facilitate the learning process for the staff designated as alternates expected to fill a role in the EOC.

Discussion based training is a great way to orientate new staff or existing staff that have not had a real opportunity to familiarize themselves with the emergency plan or organizational plans, bylaws, procedures, and policies.

Tabletop Exercise: These exercises are low cost with minimal stress, but preparation can require some time to create a scenario that is relevant to the County. A tabletop exercise is generally led by one facilitator depending upon the complexity of the scenario. Tabletop exercises are great ways to identify gaps in plans, policies, and procedures in the post-exercise discussions. To complete the exercise, an After-Action Report is completed to identify any shortcomings or deficiencies that need to be addressed.

Operations-Based Exercise: The primary intent is to deploy personnel and equipment in a drill, functional exercise, or a full-scale exercise. The disadvantage of an operations-based exercise is that they require a significant amount of time to plan and prepare for, as resources will be required from multiple agencies. Operations-based exercises generally reveal gaps and weaknesses in training, inter-agency communications, resource allocation and operational procedures. Operations-based exercises include:

- **Drills** – These are exercises that are intended to evaluate a specific operation. For example, HCFD along with Paramedic Service may conduct a drill of a carbon monoxide leak in a vacation resort.
- **Functional exercises** – These exercises can be complex with a high degree of realism and are used to test plans, procedures and policies in the training scenario which is at a single site. These exercises are used by agencies to test their capabilities of performing multiple functions.

Full-scale exercises: A complex exercise that tests multiple agencies in a single scenario at multiple sites. These exercises are in real time, highly realistic and usually stressful for agency personnel

participating in the exercise.

- A full-scale exercise can take from 6-10 months to prepare for and require a significant investment in resources and funds.
 - Several facilitators are required to ensure safety and compliance to the storyline of the exercise.
- A full-scale exercise is developed with clear objectives to test multiple agencies. Upon completion of the exercise, a hot wash is conducted which is a formal discussion of the involved agencies performance during the exercise.
- An After-Action Report and a formal Improvement Plan are prepared and distributed that identify actions required to address and improve performance.

Section #7 - Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
20	Haldimand County update their emergency management training plan to ensure that existing and new staff are current with their required training as per their position within the plan.	Staff time	Immediate (0-1 year)	Keeping this plan up to date is a requirement under the Act.	The emergency management program is legislated, and it is incumbent on municipalities to ensure that their staff are properly trained.
21	Haldimand County and the Emergency Management Coordinator work to identify and address issues created by short staffing and/or staff turnover within the emergency management plan.	Staff Time	Short-term (1-3 years)	Identifying any issues will help to ensure a strong level of in-house qualifications.	No additional comments.
22	Haldimand County and the CEMC prioritize meeting and maintaining provincial compliance.	Staff time (courses are offered at no charge)	Short-term (1-3 years) and ongoing	More efficient utilization of trained staff resources.	Need to ensure that any legislated requirements are being met.
23	Haldimand County develop and/or review essential Continuity of Operations Plans/Business Continuity Plans for the internal operations of the municipal administration.	Staff Time	Short-term (1-3 years)	Review and updating of such a plan is a key resource for the County.	Business continuity is part of the emergency preparedness overall concept.



SECTION 8

Mutual Aid, Automatic Aid
and Fire Service
Agreements

SECTION 8: MUTUAL AID, AUTOMATIC AID AND FIRE SERVICE AGREEMENTS

8.1 Mutual Aid Partners and Agreements

8.1.1 Mutual Aid Plan

The HCFD has a formal Mutual Aid Plan (MAP) that includes an automatic aid agreement with Norfolk County, a fire suppression agreement with the New Credit First Nation, and a dispatching agreement with St. Catherines. The MAP is part of the province wide fire service mutual aid system that has demonstrated its values to communities. Large fires, hazardous materials incidents, as well as wind and ice storms, are some examples of where emergency events have had the effect of overwhelming resources of *fire departments*, and where mutual aid was called upon to assist in mitigating the incident.¹² These agreements outline the authority of the Fire Chiefs to request, offer assistance or refuse assistance.

The MAP also identifies participants that provide “*backfill*” or “*stand-by*” and assist services. The County of Brant Fire Department, West Lincoln Fire and Emergency Services, Six Nations, Wainfleet Fire and Emergency Services and the Hamilton Fire Department all provide resources in this capacity.

Backfill occurs when a participant in the MAP is deployed into another station to assist by providing resources (staff and apparatus) to cover while the receiving fire department’s resources are committed to an emergency. The participating departments providing backfill may also be called to assist with the emergency or respond to other incidents.

Standby occurs when another fire department or agency is officially put on notice that they will be the first response to incoming emergency calls within another fire department’s jurisdiction while their resources are committed at another emergency incident. The standby department provides coverage without physically moving resources to another station or location.

One of the many benefits of the MAP is the foreknowledge of what resources are available for each MAP partner. The fire co-ordinator and the participating fire departments must agree to the resources that will form part of the MAP. This step helps reduce or eliminate any surprises when it comes to response resources.

Mutual aid and automatic aid agreements are essential for a community as fire protection services enhance the safety and welfare of that community. A mutual aid agreement enables a fire department to request additional services from another fire department when certain situations warrant it. For example, a request for additional equipment, apparatus and firefighters may be made

¹² Office of the Fire Marshal, Province of Ontario Mutual Aid Plan, 2018-2022.

if the requesting department is overwhelmed at a scene or needs these resources to assume station duties within the requesting department's jurisdiction.

An automatic aid agreement identifies the criteria where another department will automatically respond to an incident in another jurisdiction. Automatic aid agreements are used to improve response times and resources for incidents where another fire department is stationed closer to an incident, or the other department has equipment and technical expertise for complex incidents. These agreements have clearly identified criteria for an automatic response and the fire departments within these agreements benefit from knowing that another department is responding with additional resources to address the emergency incident.

8.1.2 Automatic Aid Agreement

HCFD has an automatic aid agreement with Norfolk County for fire suppression, fire cause and determination and investigation, hazardous material incidents to the Awareness Level, search and rescue operations, medical assistance situations where persons are trapped or endangered and require urgent rescue or medical attention, and defibrillators, extrication services, water rescue, and other responses where the HCFD would normally respond.

The automatic aid agreement is more than a decade old and should be updated in terms of service fees, standard renewal term and termination of services.

8.1.3 Fire Suppression Services Agreement 2021

The HC FD has a fire suppression agreement with the Council of the MCFN where the HCFD will provide fire protection and emergency services on a fee for service basis plus an annual retainer. The agreement was approved and signed in November 2021, with the fire protection services including:

- Fire prevention and public education programs as requested (as noted in the agreement, fire prevention activities shall be limited to public education and fire safety consultations),
- Fire suppression and life rescue from structure fires,
- Response to/and investigation of fire alarm activations,
- Fire suppression of non-structural fires (vehicles, grass/brush, etc.),
- Motor vehicle accident life rescue (extrication),
- Life rescue from incidents or accidents in addition to fire (ice/water rescue at short-based level),
- Medical assistance calls in accordance with the HCFD tiered response policy as may be amended from time to time,
- Basic response for the suppression or containment of hazardous materials at the "awareness level,"
- Response to/and investigation of carbon monoxide detector activations.

The contract has an annual retainer fee and an hourly emergency response fee that is based upon the Ministry of Transportation (MOT) response rates that are to be amended each time the MOT rates change.

Section #8 – Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
24	The automatic aid agreement with Norfolk County be reviewed and updated to align with the expectations and services fees that are reasonable and applicable for today's fire provision services.	Staff time	Immediate (Reviewed annually)	The existing automatic aid agreements is over a decade old and over this time period costs increase; fire department resources change, and service levels may change. A good practice is to review external agreements at least every three years to ensure they are current and relevant.	A good practice is to review external agreements at least every three years to ensure they are current and relevant.



SECTION

9

**Finance, Budgeting, Fees &
Cost Recovery Mechanisms**

SECTION 9: FINANCE, BUDGETING, FEES, & COST RECOVERY MECHANISMS

9.1 Finance and Budgets

Operating a fire department requires effective financial planning. Based primarily on municipal tax dollars, fire services are often reflective of the community they serve and the local resources available. As a volunteer fire service, HCFD incurs many of the same costs related to infrastructure, apparatus, and equipment as a career department. Their cost recovery mechanisms, built into the fees by-law, are similar as well. Maintaining a responsive operational budget combined with informed long-term forecasting is also a requirement for all fire service types.

9.1.1 Fees Bylaw

Within the Haldimand County fees by-law is *Section L – Emergency Services*. It outlines the annual associated costs for fire service billing. This portion contains three general areas of billing: general fire service administration, emergency response, and fire code inspections. These three sections account for fifty-one different billing options. The by-law details costs for simple services like permits, up to larger rates for fire department response. These fees are similar in structure and range as other municipal fire departments. Fire department management should meet with municipal finance managers to ensure that these rates remain current with local comparators to ensure adequate revenue sources.

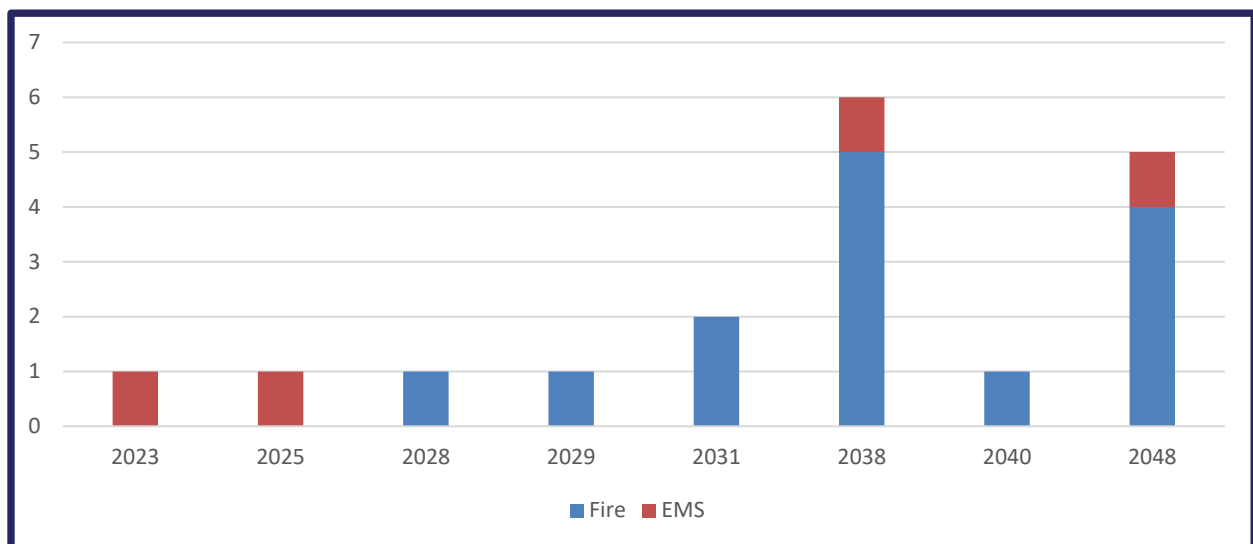
9.1.2 Long-term Planning

Fire department management requires both proper asset maintenance to assure expected life cycles, and long-term planning to meet expected growth and meet industry compliance. Typical planning focused on future investments centre on three main things: building infrastructure, apparatus, and capital purchases. Haldimand County provided EMG with their respective plans for these items, which confirmed that long-range plans are in place.

9.1.3 Building Infrastructure

Currently, Haldimand County operates twenty-four buildings in its fire and paramedic services. Of these, 6 are paramedic services and 18 are fire department buildings. In the provided documents to EMG, there are projected replacement dates for each building. Table #5 outlines these projections.

**TABLE #5: BUILDING INFRASTRUCTURE REPLACEMENT PROJECTIONS
(FIRE/EMS)**



With a proper forecast for infrastructure replacement in place, it is recommended that the Fire Chief annually review the building infrastructure replacement plan to ensure it meets municipal growth patterns and the current fire department locations remain relevant to community needs and emergency response. Proper financial planning is necessary to ensure that adequate reserves are in place to accommodate the costs associated with building replacement.

9.1.4 Apparatus Replacement

Haldimand County has a fleet of 54 vehicles and/or equipment. This fleet management plan includes an additional 11 ambulances (that included four first response units. In documents provided to EMG, Haldimand County has projected fleet replacement plans in place. Of note, both the FUS and NFPA have recommendations for apparatus replacement schedules. All of this has been noted in section #6.

Haldimand County has an operational replacement plan in place that meets or exceeds both NFPA and FUS criteria. As provided to EMG, the current replacement schedule is:

- Pumpers – 17 years
- Tankers – 20 years
- Rescue – 20 years
- Aerials – 20 years

The provided plan also estimated projected costs (at current pricing for holding estimates) that will allow for budgetary planning and establishing reserves to accommodate the anticipated purchases. HCFD has set the following replacement schedule and costs in Table #6. This

schedule is reviewed annually by the fire chief and deputy chief to ensure accuracy and cost estimates are appropriate.

**TABLE #6: HALDIMAND COUNTY FIRE DEPARTMENT FLEET
REPLACEMENT SCHEDULE**

Description	Year	Replacement	Cost
Pumper	2006	2022	750,000
Tanker	1999	2022	375,000
Tanker	1999	2022	375,000
<i>Ambulance FRU</i>	2014	2022	80,000
2022 Total			1,580,000
ERU Response	2015	2023	60,000
Ton/Tow Unit	2009	2023	10,000
Boat & Trailer	2003	2023	37,500
Pumper	2006	2023	750,000
Tanker	2000	2023	375,000
Tanker	2002	2023	375,000
<i>Ambulance</i>	2017	2023	210,000
<i>Ambulance</i>	2017	2023	210,000
<i>Ambulance FRU</i>	2015	2023	80,000
2023 Total			2,107,500
Pumper	2007	2024	750,000
Tanker	2004	2024	375,000

Description	Year	Replacement	Cost
<i>Ambulance</i>	2018	2024	210,000
<i>Ambulance</i>	2018	2024	210,000
2024 Total			1,545,000
ERU Unit	2017	2025	60,000
Tanker	2003	2025	375,000
Tanker	2005	2025	375,000
<i>Ambulance</i>	2019	2025	210,000
2025 Total			1,020,000
Rescue	2007	2026	375,000
Tanker	2005	2026	375,000
<i>Ambulance</i>	2020	2026	210,000
2026 Total			960,000
ERU Unit	2019	2027	80,000
Rescue	2007	2027	70,000
Pumper/Rescue	2010	2027	750,000
Pumper/Rescue	2010	2027	750,000
Pumper/Rescue	2010	2027	750,000
Tanker	2017	2027	375,000
<i>Ambulance</i>	2021	2027	210,000
2027 Total			2,985,000

Description	Year	Replacement	Cost
ERU Unit	2020	2028	60,000
Rescue	2008	2028	375,000
Pumper/Rescue	2011	2028	750,000
2028 Total			1,185,000
Rescue	2012	2029	10,000
Pumper/Rescue	2012	2029	750,000
Pumper/Rescue	2012	2029	750,000
Pumper/Rescue	2012	2029	750,000
ERU Unit	2021	2029	60,000
<i>Ambulance FRU</i>	2021	2029	80,000
2029 Total			2,400,000
Boat & Trailer	2010/2007	2030	37,500
Aerial	2010	2030	1,400,000
Tanker	2007	2030	375,000
2030 Total			1,812,500
Aerial	2011	2031	1,400,000
Tanker	2020	2031	375,000
Rescue	2020	2034	200,000
Pumper	2017	2034	750,000
2031 to 2034 Total			2,725,000

Description	Year	Replacement	Cost
Boat & Trailer	2015	2035	37,500
Rescue	2015	2035	375,000
Rescue	2015	2035	375,000
Rescue	2015	2035	375,000
Generator	2016	2036	75,000
Boat & Trailer	2017	2037	37,500
Trailer	2019	2040	7,000
2035 to 2040 Total			1,282,000
Grand Total			19,602,000

HCFD has provided a fleet replacement plan that meets or exceeds current industry standards. It is recommended that the Fire Chief annually review the fleet replacement schedule to update projected costs and currency. This will account for inflation rates and manufacturing costs to better budget for replacement vehicles. To assist in maintaining the fleet, proper apparatus and vehicle maintenance schedules are necessary. It is recommended that, due to the size of their fleet, that HCFD implement an electronic tracking software system for apparatus and vehicle maintenance. This will help to ensure that the units are kept at optimal operating condition and fulfill the expected life cycle.

9.1.5 Capital Purchases

Equipment maintenance and replacement scheduling is essential to department and financial management. This includes planning for items such as (but not limited to): PPE and bunker gear, SCBA and safety equipment, radio communications, hose and appliances, and specialty tools and equipment. HCFD communicated to the EMG team that there are plans in place to address two of these items through capital purchase planning: radio communication systems and SCBA.

Radio and Communication Systems

The current radio stock, as discussed in the Communications section, are currently operating on the VHF analog system. As part of a planned migration to a digital capable radio system the

radio stock is being replaced in segments. In communications to EMG, the Fire Chief stated that when the current units are due for replacement in five to ten years, they would consider a complete replacement plan. While incurring a larger single price point, this would provide better bulk purchasing, standard warranties, improved inventory tracking, and current technologies. For a department the size of HCFD, and managing a radio infrastructure of that size, this plan is in the best interests of the department and supported by EMG.

Self-Contained Breathing Apparatus

HCFD currently has a stock of SCBA spread across the various fire stations. In total, there are:

- 137 SCBA units
- 334 cylinders
- 304 face masks

HCFD is meeting current industry and regulation standards in expected replacement schedules as they replace the SCBA units every ten years and cylinders every 15 years. The replacement schedule for these units is based on annual need and budgeted accordingly. The Fire Chief communicated that he would prefer to replace the units all at once in a bulk purchase, perhaps as early as 2024. Due to the size of the fire department, this would be in their best interests. Bulk replacement offers benefits including discounted prices, standardized technology, warranty continuity, and commonality and familiarity across the department. Due to the size of HCFD, EMG supports the Fire Chiefs plans to replace the SCBA inventory in a bulk purchase. The Fire Chief is encouraged to conduct a thorough review of available options from all suppliers to best utilize Haldimand's purchasing power.

Section #9 - Recommendations

Rec #	Recommendation	Estimated Cost	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
25	The Fire Chief annually review the building infrastructure replacement plan to ensure it meets municipal growth patterns and the current fire department locations remain relevant to community needs and emergency response.	Staff time initially. Cost depending on needs.	Short-term (1-3 years) ongoing	Review recommended to ensure services are meeting the needs of the department and community.	Reviewing replacement costs to ensure operating and capital costs are as accurate as possible is an excellent practice.
26	The Fire Chief annually review the fleet replacement schedule to update projected costs and currency.	Staff time initially. Cost depending on needs.	Short-term (1-3 years) ongoing	Review recommended to ensure services are meeting the needs of the department response capabilities.	This is presently being completed. However, with the increasing fleet costs, ongoing monitoring of this is recommended.
27	HCFD implement an electronic tracking software system for apparatus and vehicle maintenance.	Staff time initially. Cost depending on software if required.	Short-term (1-3 years) ongoing	Will provide more accurate tracking of apparatus and vehicle maintenance.	This is presently being completed. However, using an electronic program will help improve the process.



SECTION

10

Recommendations, Timelines, & Associated Costs

SECTION 10: RECOMMENDATIONS, TIMELINES, & ASSOCIATED COSTS

10.1 Recommendations, Estimated Costs and Rationale

During the review conducted by EMG, it was demonstrated that the Haldimand County Fire Department staff are truly dedicated to the community they serve. Council, the County CAO, and the Fire Chief are sincerely committed to ensuring the safety of the community and all personnel of the Fire Department. Based on the present staffing, equipment, and fire station's locations, HCFD is endeavoring to offer the most efficient and effective service possible. But there is still room for improvement.

10.2 Recommendations, Estimated Costs, and Rationale

All costs and associated timelines are approximate estimates that can be implemented through prioritization between the Fire Chief, County CAO, and Council.

The following chart provides a detailed overview of the recommendations found throughout this report along with any estimated costs and suggested timelines for implementation. A section has also been added to the chart identifying potential efficiencies upon implementation of the recommendations presented by EMG. This FMP document is a culmination of 27 recommendations.

Due to some of the specific recommendations made in this document, it is advisable that the Fire Chief view this plan as a "living document", conducting frequent reviews of the recommendations, and bringing forward updates to Council annually, or sooner if required.

It is the responsibility of the HCFD management to ensure that all recommendations contained within this FMP, and CRA document are noted, captured, and set up in a format that allows HCFD to continually monitor, evaluate and update each recommendation as needed. Part of a risk reduction plan is to ensure that the loop is closed on recommendations.

Whether a recommendation is implemented, deferred, or rejected, all recommendations need to be addressed. By doing this, Fire Department management is ensuring that all opportunities to reduce risk within the community have been explored.

HCFD Recommendations Chart

***Note:** The timelines noted within these recommendations are when the department should consider starting the implementation process. Completing the recommendation may take much longer due to cost or other logistical challenges.*

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
Section 2 – Planning					
1	That the Fire Chief brings forth a revised version of the Establishing & Regulating By-Law for Council's approval and, going forward, the Fire Chief annually reviews and updates the By-Law as necessary. And that all other by-laws noted in this document be reviewed and updated as required. All by-laws should be reviewed annually to ensure currency of the document.	Staff time	Short-term (1-3 years) ongoing	Having an up-to-date E&R By-Law will guide the operations of the HCFD and identify response guidelines, fire prevention and public education programs and levels of training.	A new By-Law was presented to Council in 2022. As such, going forward, the Fire Chief should review the document annually to ensure the document is current and continues to reflect fire department operations and needs.
2	Establish an SOG Committee representing all divisions of the HCFD that develops new SOGs and reviews current ones regularly.	Staff time	Short-term (1-3 years)	Establishing an SOG committee will aid in maintaining the information in the data base to be current while allowing the participation	This is a best practice recommendation that creates greater involvement by the firefighters.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
				of HCFD members to determine the fire department's operations.	
Section 3 – Risk Assessment					
3	That Haldimand County develops a comprehensive CRRP that falls in line with the CRA and the FMP recommendations.	Staff time	Short-term (1-3 years) ongoing	With the risks to the County identified, the CRRP will aid in prioritizing the who, what, when and how these will be reduced or mitigated. Utilizing the CRA and FMP recommendations will guide the Fire Chief in creating this CRRP.	This is an NFPA recommendation, which is not legislated but is an industry best practice.
Section 4 – Fire Department Divisions – Non-Suppression					
4	The HCFD should increase the prevention and education programs for seniors within the County.	Staff time	Short-term (1-3 years) ongoing	Adults 65 years of age and older are at a higher risk of dying in a fire than any other age group. Increasing the prevention and education strategies for this demographic will have a positive impact by preventing fire, life and property loss.	The fire department is doing this on a request basis, but more emphasis in this area is recommended.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
5	The HCFD should review their high-risk occupancies in the existing five-year inspection schedule and create an annual inspection schedule that prioritizes Type A, B, and C occupancies along with the High-Risk Classifications as per NFPA 1730.	Staff time	Short-term (1-3 years) ongoing	High-risk occupancies are considered to have a higher probability of fire or other emergency due to the materials stored, manufactured or used on site and as a result of this risk, there is a higher-than-average risk for injury or death to occupants or employees. Ensuring that high-risk occupancies are inspected annually will be a key factor in a community risk reduction plan.	Although HCFD does meet the requirements for mandatory inspections of specific facilities, they do not meet their five-year plan or the NFPA Standard. NFPA is not mandatory; it is viewed as an industry best practice, and HCFD should consider adopting it.
6	The HCFD conducts an assessment as per Annex "C" of NFPA 1730 to determine whether the existing staff can meet the demands of the 5-year inspection schedule and other required duties.	Staff time	Short-term (1-3 years) ongoing	The existing FPOs are not able to meet the inspections as identified in the five-year schedule, and working through the five-step process can help determine what duties are more demanding and time-consuming for the FPOs.	The NFPA is not mandatory. However, the bureau can determine if more staff are required and/or how best to allocate existing staff complement.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
7	That each fire station completes a minimum of three preplans annually.	Staff Time	Short-term (1-3 years) ongoing	Preplanning is a proactive measure that has a high benefit-cost ratio (BCR). The benefits of completed preplans are very high, with little associated costs other than the time required to complete the preplan.	HCFD presently does accomplish two preplans per year per station. This increase to three is viewed as a means of firefighters gaining greater familiarity with their response zones and the possible risks within them.
8	HCFD to work in conjunction with residential developers to promote the advantages of installing residential fire sprinklers.	Staff Time	Immediate (0-1 year)	Continued support of this life-saving initiative will help confirm home sprinkler systems' benefits. This can be done (in part) through the development of a pre-consultation process run through the County's Planning Division.	There is no legislation requiring sprinkler systems in homes. However, the Fire Chief's Associations are promoting the inclusion of these life safety systems.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
9	HCFD adopts an educational progression plan. The proposed training programs and succession path should be supported for current and proposed positions with the following suggested training: For the position of captain, emergency management training should start with IMS-100 Introduction to the Incident Management System (IMS) for Ontario and IMS-200 Basic Incident Management System for Ontario. The position of district chief, emergency management training continues with IMS 250 – IMS in EOCs.	Staff time	Short-term (1-3 years) and ongoing	Education and succession planning is critical to the success of any organization.	The HCFD has a solid training program that will benefit from the implementation of a more formal progression plan.
10	Create a formal organization development program that identifies technical and core competencies for the Fire Chief, Deputy Fire Chief, District Chief, Captain, and Firefighter and be formally implemented.	Staff time	Short-term (1-3 years)	Understanding the core competencies of each position will set the foundation for training-related needs.	As noted, the HCFD has a solid training program that will benefit from the development of core competencies.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
Section 5 - Suppression					
11	HCFD to develop a formal health and wellness program that includes all facets relating to fitness, cancer prevention, PTSD and EAP peer support.	Staff Time	Immediate (0-1 year) ongoing	Ensuring the health and wellness of the volunteers and staff is a responsibility of a municipality.	Health and wellness are legislated programs.
12	HCFD monitors its ability to meet effective response times based on NFPA 1720. And that specific focus on the three stations that are nearing the 300 call per year mark to ensure that response times and number of volunteers are being affected by the level of calls.	Staff Time	Immediate (0-1 year) ongoing	By monitoring and measuring the department's response times, the Fire Chief will be better able to report the level of effectiveness of the Department to Council. This type of measurement will also help to identify issues and possible gaps in response coverage.	The fire stations that are nearing the 300 call per year mark are Hagersville, Dunnville, and Caledonia.
13	The Fire Chief should work with communication/dispatch stakeholders to ensure that the needs of the Haldimand County Fire Department are properly reflected in the updated dispatch agreement.	Approx. cost of \$120,000.00 annually	Short-term (1-3 years)	Ensuring a strong and dependable dispatching service for the HCFD is critical to having an effective and efficient service.	Presently, the County is paying \$120,000 a year for this service and ensuring the Fire Department's needs are met is recommended.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
14	Haldimand County continues to work with St. Catharines to ensure that timelines and costs are appropriately managed for stakeholders and partners in the NG911 migration.	Staff time and possible vehicle upgrades when being replaced	Transitional time – Mid-term (4-6 years)	Ensuring a strong and dependable dispatching service for the HCFD is critical to having an effective and efficient service.	The NG-911 program is being Federally mandated.
15	The Fire Chief finishes the radio infrastructure replacement schedule and in five years, begin a review of another replacement plan with an implementation schedule of up to ten years.	Staff time with possible equipment upgrades	Mid-term (4-6 years)	Ensuring a strong and dependable dispatching service for the HCFD is critical to having an effective and efficient service.	The Fire Chief and staff are conducting this review, which will need to be updated as required.
16	The Fire Chief establishes a digital migration implementation plan with St. Catharines Fire Department (or other service provider).	Staff time with possible equipment upgrades	Mid-term (4-6 years)	Ensuring a strong and dependable dispatching service for the HCFD is critical to having an effective and efficient service.	The NG-911 program is digitally based. So, fire departments presently on analog systems will need to upgrade.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
Section 6 – Facilities and Vehicles					
17	Recommendations noted relate to: • Removal of firefighting gear from apparatus floor to reduce vehicle exhaust contamination. • Upgrading of washrooms to include proper shower/decontamination facilities. • Installation of vehicle exhaust systems to reduce exposure to diesel exhaust by the firefighters.	Full station assessment is required before full costing can be determined	Short-term (1-3 years) ongoing	Facility upgrades are necessary to meet the needs of the firefighters.	Each station's concerns are within the section. Some of these will be addressed in two fire stations (Station #1 and Station #9) that are scheduled to be "new builds."

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
18	Council in consultation with the Fire Chief, to consider a feasibility study of the two options presented in relation to: • Option #1 – closing of two fire stations. • Option #2 – creation of a new six fire station model, with a mix of career and volunteer staffing. And that a full feasibility study be conducted by either the Director of the Works Department or through a third party to identify costs related to upgrading of fire stations to accommodate a full-time contingent of staffing.	Depending on the Option chosen and the Feasibility Study	Long-term (6-10 years) or longer dependent on the option	The options noted in the master plan are intended to be as efficient as possible with limited resources while at the same time ensuring a strong level of coverage for the community.	This recommendation supports the need for a third-party consulting group to work with the HCFD on this feasibility study.
19	Greater utilization of the tablets to incorporate a pre-incident planning program, available on each responding fire truck.	Staff time	Short-term (1-3 years)	Utilizing technology in record keeping and information availability allows quicker access, along with the ability to better collate information.	No additional comments.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
Section 7 - Emergency Management					
20	Haldimand County to update their emergency management training plan to ensure that existing and new staff are current with their required training as per their position within the plan.	Staff time	Immediate (0-1 year)	Keeping this plan up to date is a requirement under the Act.	The emergency management program is legislated, and it is incumbent on municipalities to ensure that their staff are properly trained.
21	Haldimand County and the Emergency Management Coordinator work to identify and address issues created by short staffing and/or staff turnover within the emergency management plan.	Staff Time	Short-term (1-3 years)	Identifying any issues will help to ensure a strong level of in-house qualifications.	No additional comments.
22	Haldimand County and the CEMC prioritize meeting and maintaining provincial compliance.	Staff time (courses are offered at no charge)	Short-term (1-3 years) ongoing	More efficient utilization of trained staff resources.	Need to ensure that any legislated requirements are being met.
23	Haldimand County develops and/or reviews essential Continuity of Operations Plans/Business Continuity Plans for the internal operations of the municipal administration.	Staff Time	Short-term (1-3 years)	Reviewing and updating such a plan is a key resource for the municipality.	Business continuity is part of the emergency preparedness overall concept.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
Section 8 - Fire Service Agreements					
24	The automatic aid agreement with Norfolk County is reviewed and updated to align with the expectations and services fees that are reasonable and applicable for today's fire provision services.	Staff time	Immediate (Reviewed annually)	The existing automatic aid agreements are over a decade old, and costs increase over this period; fire department resources change, and service levels may change.	A good practice is to review external agreements at least every three years to ensure they are current and relevant.
Section 9 – Finance and Budgets					
25	The Fire Chief reviews the building infrastructure replacement plan annually to ensure it meets municipal growth patterns and the current fire department locations remain relevant to community needs and emergency response.	Staff time initially. Cost depends on needs.	Short-term (1-3 years) ongoing	Review recommended to ensure services are meeting the needs of the department and community.	Reviewing replacement costs to ensure operating and capital costs are as accurate as possible is an excellent practice.
26	The Fire Chief to continue the annual review of the fleet replacement schedule to update projected costs and currency.	Staff time initially. Cost depends on needs.	Short-term (1-3 years) ongoing	Review recommended to ensure services are meeting the needs of the department's response capabilities.	This is presently being completed. However, with the increasing fleet costs, ongoing monitoring of this is recommended.

Rec #	Recommendation	Estimated Costs	Suggested Timeline	Rationale	Recommendation Status, Update or Requirement
27	HCFD implements an electronic tracking software system for apparatus and vehicle maintenance.	Staff time initially. Cost depends on software if required.	Short-term (1-3 years) ongoing	It will provide more accurate tracking of apparatus and vehicle maintenance.	This is presently being completed. However, using an electronic program will help improve the process.

APPENDICES

Appendix 'A' – Five-Step Staffing Process

Appendix 'B' – Call and Response Data (2019 – 2020)



Appendix 'A'

Five-Step Staffing Process



APPENDIX A – FIVE-STEP STAFFING PROCESS

Step 1: Scope of Service, Duties, and Desired Outputs

Identify the services and duties that are performed within the scope of the organization. Outputs should be specific, measurable, reproducible, and time limited. Among the elements can be the following:

- Administration
- Data collection, analysis
- Delivery
- Authority/responsibility
- Roles and responsibilities
- Local variables
- Budgetary considerations
- Impact of risk assessment

Step 2: Time Demand

Using the worksheets in Table C.2.2(a)-(d), quantify the time necessary to develop, deliver, and evaluate the various services and duties identified in Step 1, taking into account the following:

- Local nuances
- Resources that affect personnel needs

Plan Review - Refer to Plan Review Services Table A.7.9.2 of the standard to determine Time Demand.

Step 3: Required Personnel Hours

Based on Step 2 and historical performance data, convert the demand for services to annual personnel hours required for each program *[see Table C.2.3(a) through Table C.2.3(e)]*. Add any necessary and identifiable time not already included in the total performance data, including the following:

- Development/preparation
- Service
- Evaluation
- Commute
- Prioritization

Step 4: Personnel Availability and Adjustment Factor

Average personnel availability should be calculated, considering the following:

- Holiday
- Jury duty
- Military leave
- Annual leave/vacation
- Training
- Sick leave
- Fatigue/delays/other

Example: Average personnel availability is calculated for holiday, annual, and sick leave per personnel member (see Table C.2.4).

Step 5: Calculate Total Personnel Required

Branch of the unassigned personnel hours by the adjustment factor will determine the amount of personnel (persons/year) required. Any fractional values can be rounded up or down to the next integer value. Rounding up provides potential reserve capital; rounding down means potential overtime or assignment of additional services conducted by personnel. (Personnel can include personnel from other agencies within the entity, community, private companies, or volunteer organizations).

Correct calculations based on the following:

- (1) Budgetary validation

(2) Rounding up/down

(3) Determining reserve capital

(4) Impact of non-personnel resources (materials, equipment, vehicles) on personnel

More information on this staffing equation can be found within the National Fire Protection Association 1730 standard. The Fire Prevention should assess the previous five steps and evaluate their present level of activity and the future goals of the Branches.

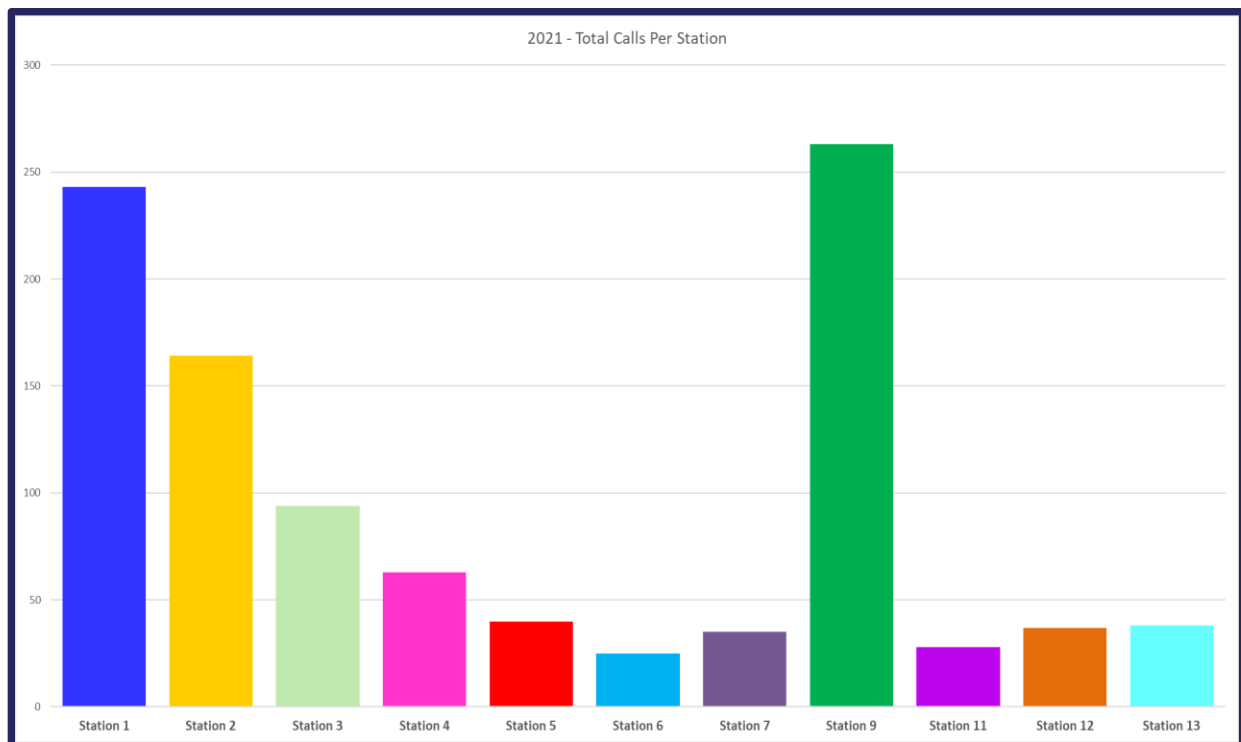
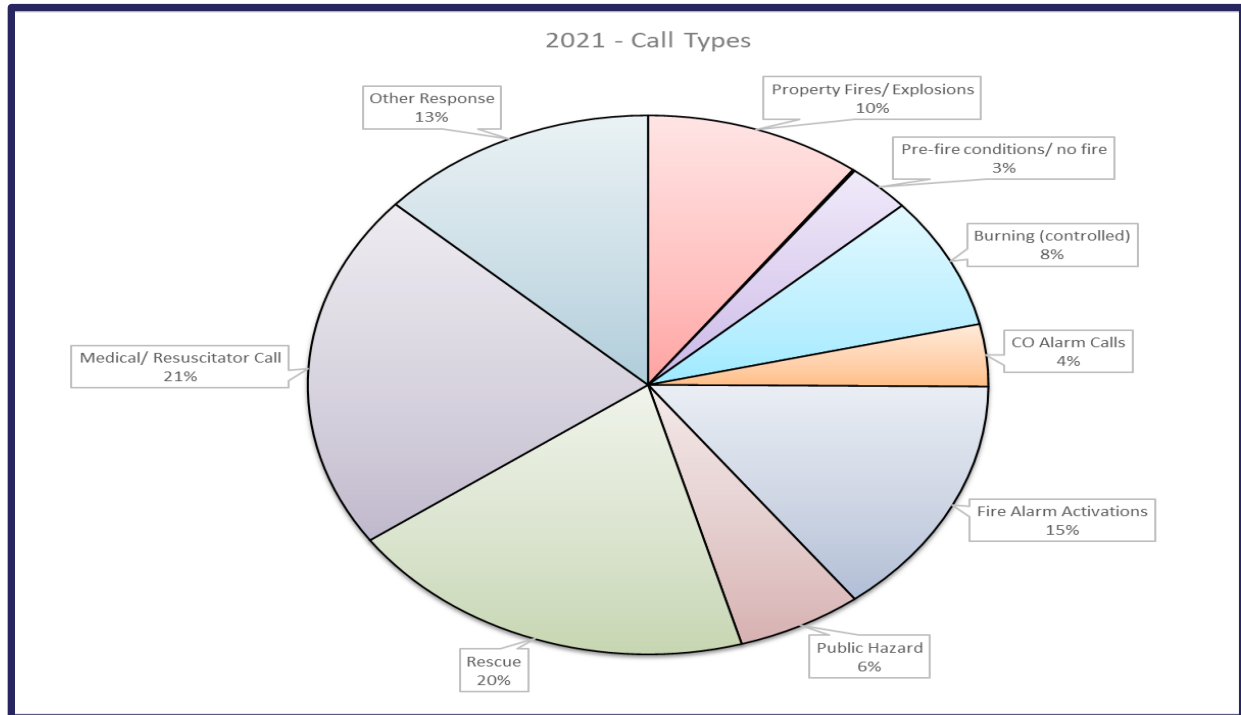


Appendix 'B'

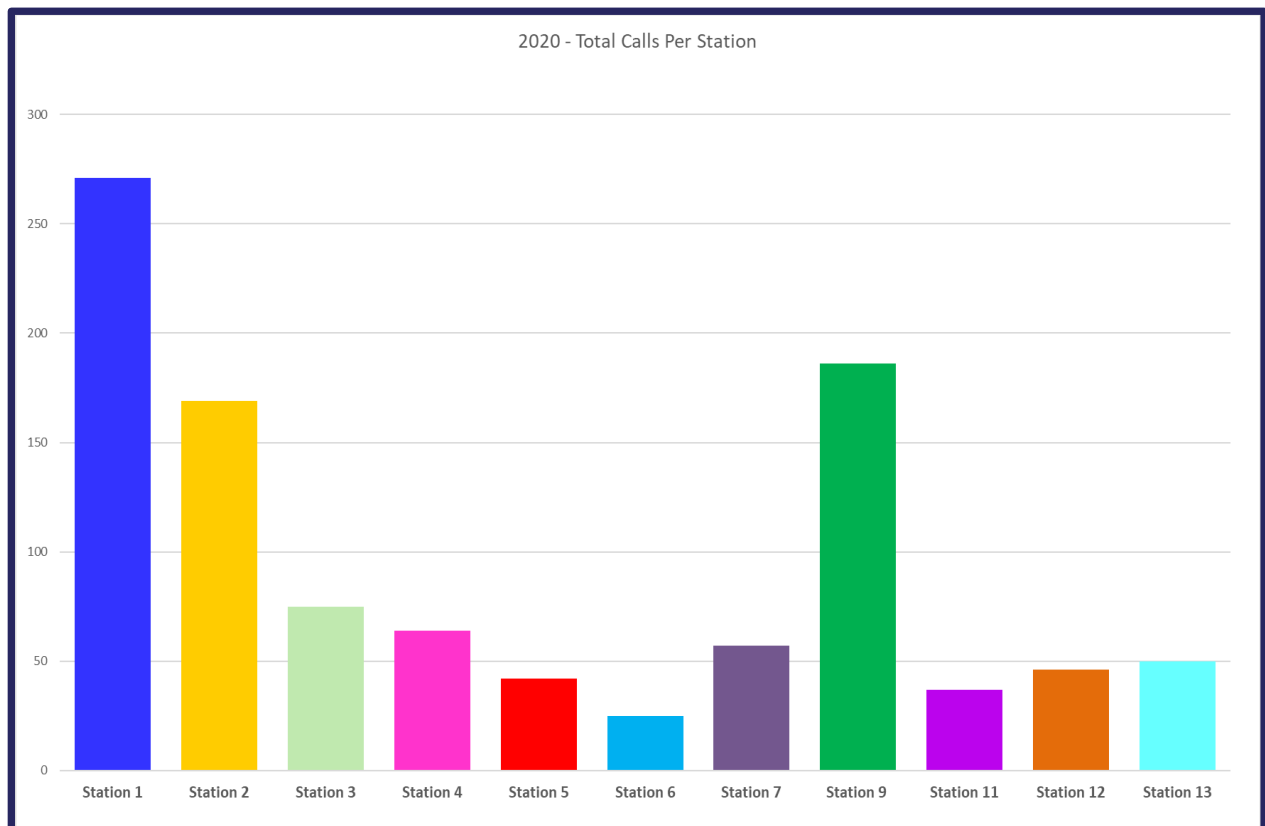
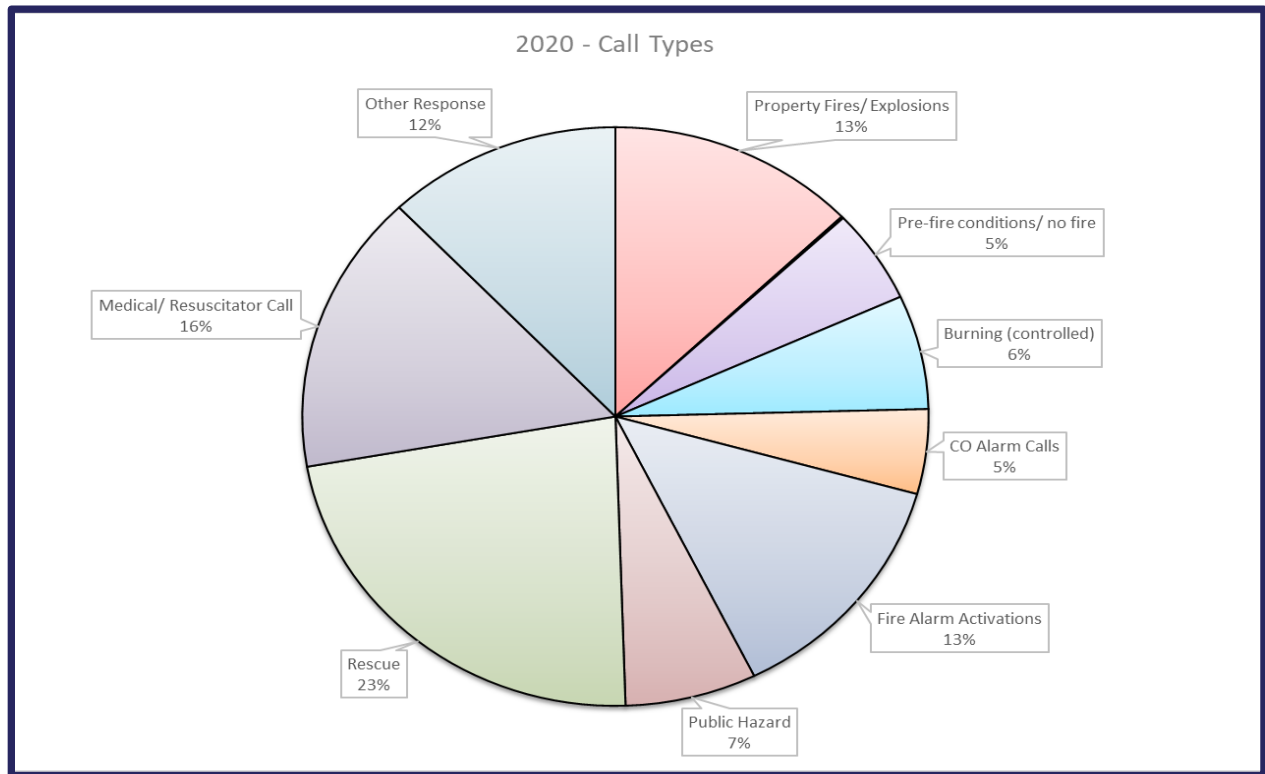
Call and Response Data
(2019 – 2020)

APPENDIX B – CALL AND RESPONSE DATA (2019 – 2020)

2021 Response Charts



2020 Response Charts

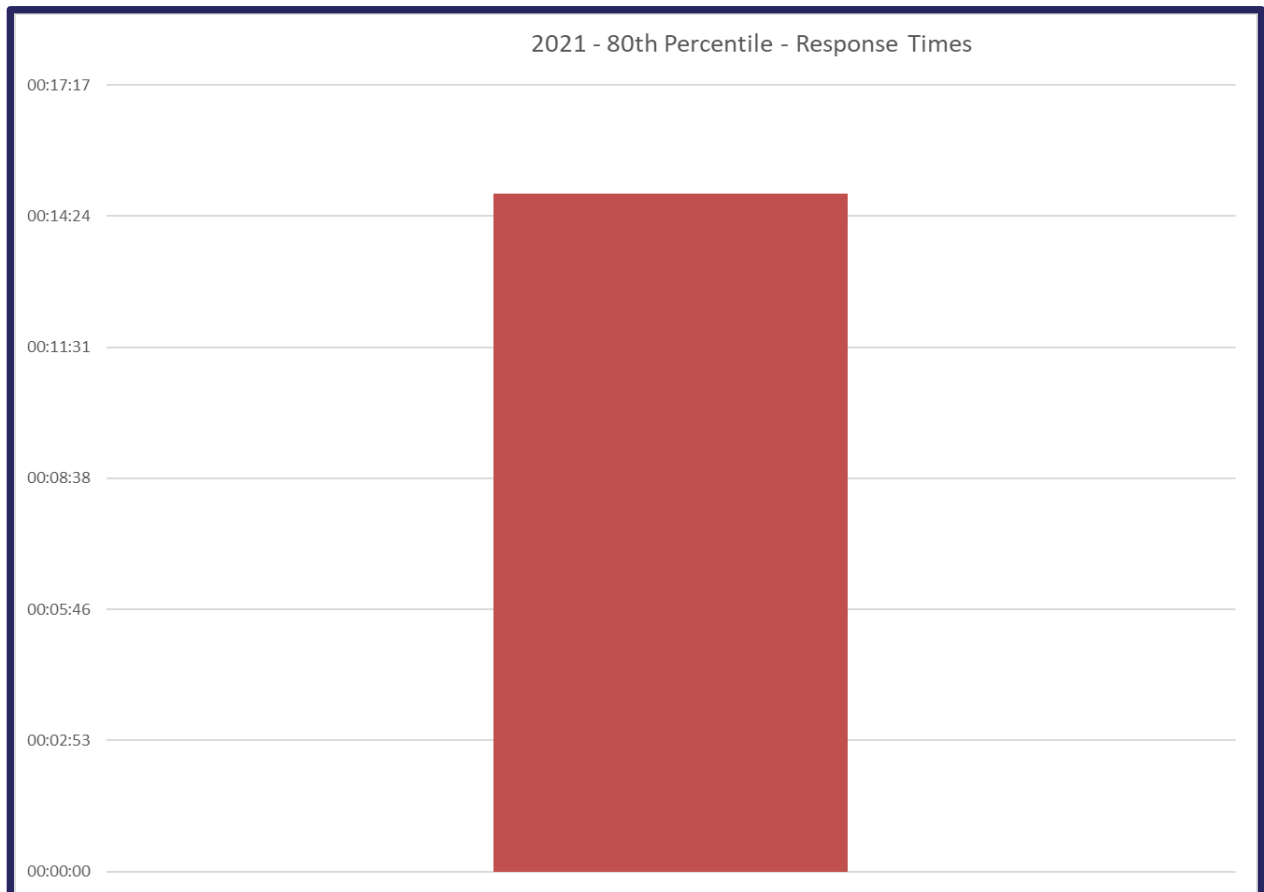


Yearly Comparisons of 80th Percentile Response Times

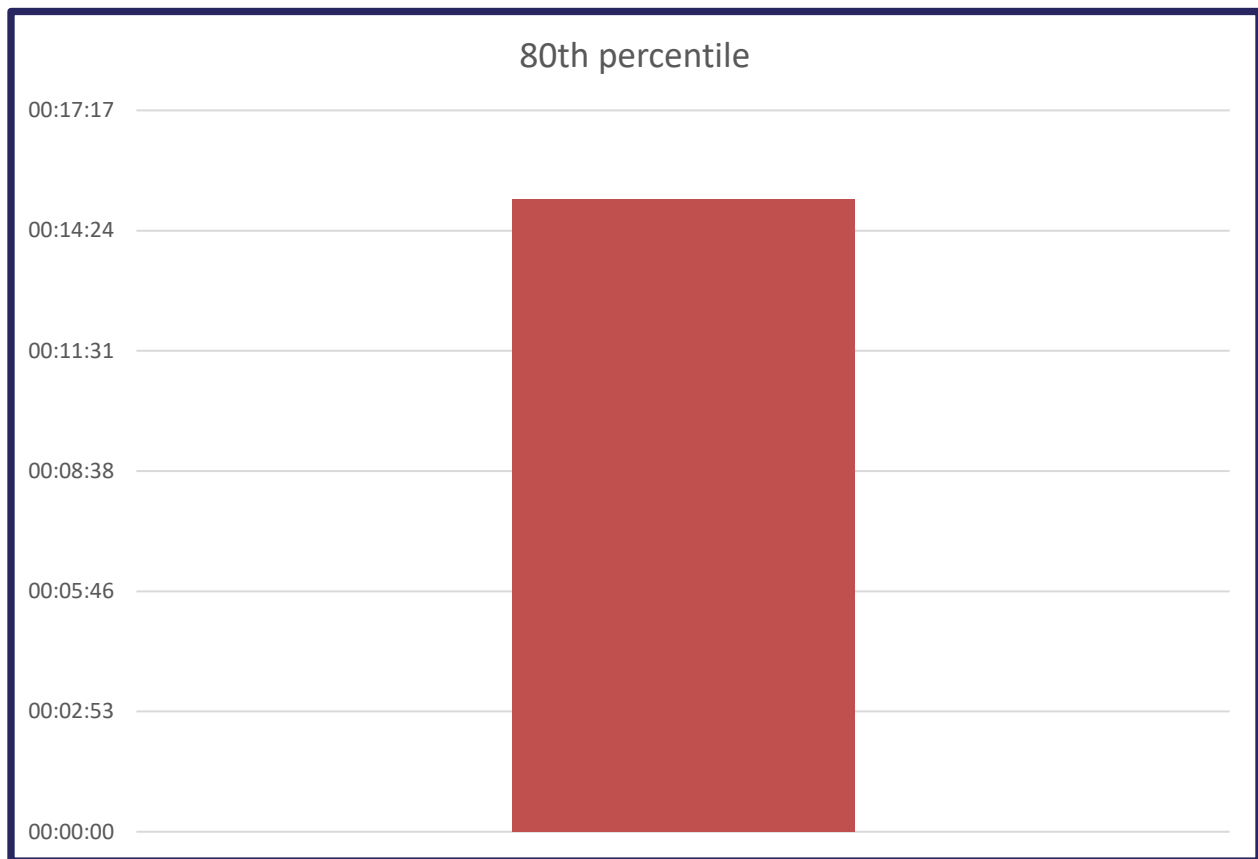
Note: The 80th percentile criterion is the recommended practice that is endorsed by the National Fire Protection Association and the Commission on Fire Accreditation International. This data is considered more accurate since it is evaluating the times based on 80 percent of the calls, as opposed to averaging the times at the 50th percentile. For example:

- 8 out of 10 times the fire department arrives on scene in 14 minutes or less. Which means that only 20 percent of the time they are above that 14-minute mark, as opposed to 5 out of 10 times the fire department arrives on scene in 14 minutes or less, which means that 50 percent of the time they are above the targeted minute mark.
- Travel Time is the time tracked from when the fire vehicle has left the station until arrival at the incident location.
- Response time is the total time from receipt of page (on 9-1-1) to the time the fire vehicle arrives at the incident location.

2021 80th Percentile = 14 minutes and 54 seconds



2020 80th Percentile = 15 minutes and 9 seconds



As noted in the two response charts, the overall response times by HCFD are relatively consistent from 2020 to 2021.